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DOMESTIC ENGINEERING

PUBLISHED AT
00 PRAIRIE AVENUE
CHICAGO

A
Second
FHA Prize Contest
for Our Industry
See Page 46

MARCH
1935

Plumbing *and Merchandising*

THE DEPENDABLE PIPE FOR EVERY SERVICE . . .

And These Are the Places Where You Can Find Business . . .

The name—Republic Steel—on pipe means quality—dependability—economy in service. Contractors who value good will as a builder of business will find in Republic Steel Pipe a valuable aid. To use it is an indication of your thoughtfulness and reflects good business judgment. Your supply house stocks it or can get it.

The years take their toll of plumbing and heating systems in old residences. Modernizing is the order of the day. Bring these old buildings back to usefulness—and use Republic Steel Pipe.

Industrial plants that have gathered dust during five years of depression are again coming to life. Pipe in plumbing, heating and process lines must be replaced before activity can be resumed. Another use for Republic Steel Pipe.

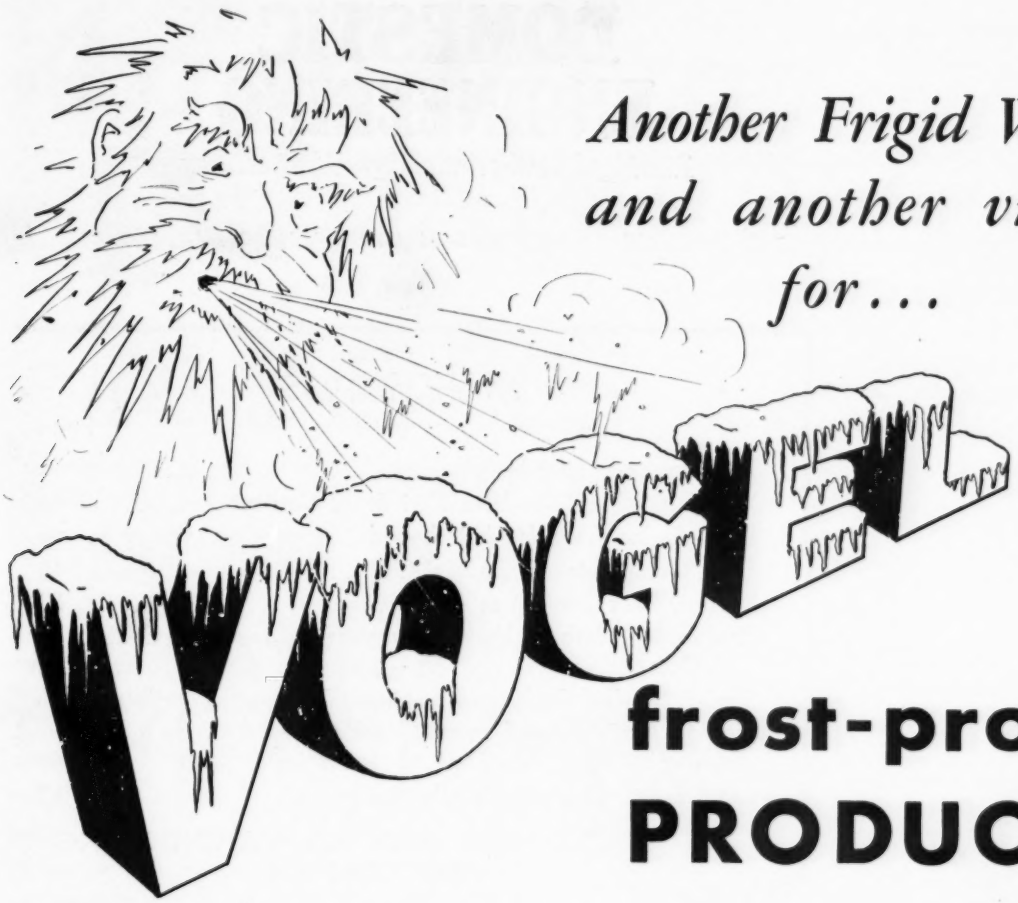
Stores are showing the result of increased buying activity—are being remodeled and again placed in condition for retail trading. They, too, require new piping and are calling for dependable pipe —Republic Steel Pipe.

Hospitals, churches, schools, libraries, theatres—public buildings of every kind must be maintained, changes made, additions built . . . This calls for changes in piping layouts and gives the contractor an opportunity to use more Republic Steel Pipe.

REPUBLIC STEEL PIPE

Republic Steel CORPORATION

GENERAL OFFICES · · · YOUNGSTOWN, OHIO



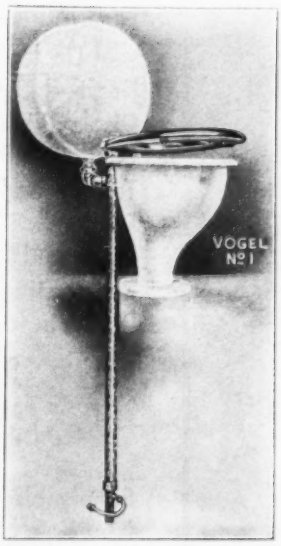
Another Frigid Winter and another victory for...

frost-proof PRODUCTS

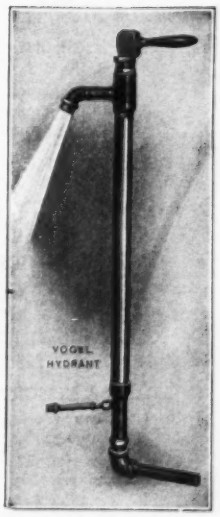
The coldest weather of the year still made no impression on Vogel Frost-Proof Closets and Hydrants. All year 'round, winter or summer, Vogel Products stand up under the hardest use and abuse, and continue to build good will for you with your customers.

Have you received a supply of our new folders and blotters imprinted with your name and address? If not, write and tell us how many you need to send to your customers.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. • • • St. Louis, Mo.



Vogel No. 1—Many thousands in use in all parts of the country. Cannot freeze, no matter how cold the weather.



Vogel Frost-Proof Hydrant. For garages, yards, playgrounds, etc. Nothing to stop up. Will never freeze.

VOGEL PATENTED *frost-proof* **Products**

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

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MARCH, 1935

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Announcing~

LOWER PRICES

on

MYERS

SIX INCH STROKE DEEP WELL

WATER SYSTEMS

Lower Prices on Myers Six Inch Stroke Self-Oiling Deep Well Power Pumps and Water Systems—the finest we have ever built with many important improvements and of the same high quality and performance—make this announcement of outstanding importance to pump and water system dealers everywhere.

They are not new, untried units, quickly designed to meet any particular market or condition but are the same regularly catalogued, precision built, time tested, popular sizes that have been and are now being nationally advertised and sold.

Our new Catalog, No. 67, is now being mailed to our trade. If you are a Myers Dealer or Distributor you will receive your copy shortly. If you are not selling Myers Pumps and Water Systems at present, we suggest your writing us immediately for a New Myers Catalog, complete information and NEW LOW PRICES.

FIG. 2700

Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

THE F. E. MYERS & BRO. COMPANY

ASHLAND, OHIO.

PUMPS – WATER SYSTEMS – HAY TOOLS – DOOR HANGERS

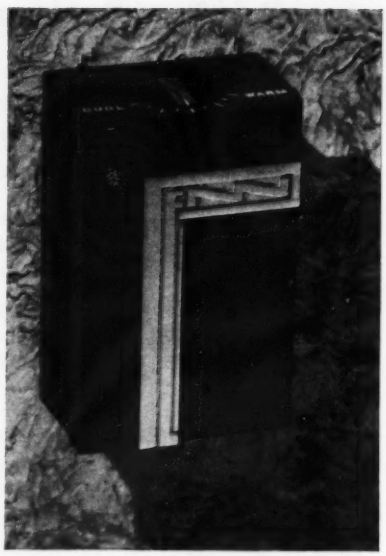
MAIN LIBRARY

Approved ★

Nearly one year ago . . . when the New Penn Temtrol System was generally announced . . . we issued the following statement:

"Any automatic heating plant sold this season with a conventional thermostat, plain or clock type, will be sold with an obsolete control. And you can depend upon it that some alert dealer will replace that thermostat with Temtrol almost at once. This is a plain statement of fact . . . not a claim for advertising effect. Temtrol has superseded the thermostat."

Today the truth of that statement is being proved by the ever increasing number of Temtrols sold to replace obsolete, conventional thermostats . . . and by the leadership which Temtrol has achieved in the field of automatic temperature control.

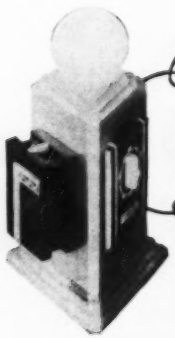


★

Temtrol has been both proved and approved by many of the largest and best known manufacturers in the automatic heating industry in their own testing laboratories and by service in the field. ¶To maintain your prestige and leadership, insist that every installation you make or service be controlled by Temtrol.

RE-CONTROL WITH TEMTROL

The replacement market of obsolete thermostats offers every automatic heating dealer a real opportunity to materially improve the comfort and satisfaction of his clients' heating systems, and to increase sales and profits. Write today for complete details and the special offers included in the Penn "RE-control with Temtrol" Campaign, a splendid selling idea which creates business for every type of home appliance, heating, and air-conditioning equipment you sell. Sales aids include a new type Temtrol Home Operating Demonstrator and Demonstration Boards for salesmen, a complete local advertising campaign, and attractive sales literature.



DEMONSTRATOR
At Special Prices

Dealers from coast to coast have ordered these attractive new Temtrol Display Demonstrators and report they create wonderful sales. Standard equipment now includes beautiful new ivory model Temtrols and Timetrol at no extra cost. Complete kit including carrying case priced less than cost of controls. Send for complete details and prices.

PENN
ELECTRIC SWITCH CO.

GENERAL OFFICES . . DES MOINES, IOWA. **BRANCHES:** New York, Boston, Detroit, Chicago. **REPRESENTATIVES:** Minneapolis, San Francisco, Los Angeles, Seattle, Kansas City. **DISTRIBUTORS** in Most Principal Cities. **EXPORT OFFICE:** 15 Laight St., New York City

NOW!

A PERFECTED WATER SYSTEM THAT SELLS FOR LESS and *MAKES MORE MONEY FOR YOU!*

The New STA-RITE WATER SYSTEMS

ELECTRIC AND GASOLINE ENGINE DRIVEN

Announcing:

A full range of convertible models from 250 to 600 gal. capacity to be followed by a complete line of other types of systems to fit every need for farms, schools, service stations, dairies, institutions, etc. Easy to install—built for long trouble-free service.

Advanced Design:

Simplified design with many new exclusive features; makes possible lower manufacturing costs. Leads the field in performance, economy, and sales appeal. Out-dates pumps sold at far higher prices. It's as new and different as it looks.

WHY THE STA-RITE LINE MEANS BIGGER PROFITS FOR YOU

1. New low prices to the dealer
2. Attractive dealer terms and real cooperation
3. "Ahead of the parade" design
4. Better looking—compact—simplified construction—quiet operation—long life—slow speed
5. Nationally known motor with built-in low voltage protection—or gasoline engine drive
6. Interchangeable parts
7. Dependable; rated on delivery capacity—not displacement
8. Every unit tested under actual working conditions
9. Simplest service job in the industry
10. Thoroughly guaranteed

STA-RITE Means That It *STAYS RIGHT* in the Hands of Your Customers

The STA-RITE line is built by nationally known engineers with a combined experience of more than 50 years in the design and manufacture of high-grade pumps. We invite inquiries from dealers who are looking for an opportunity to make more profit in this growing market. The STA-RITE line gives you an advantage over competition in selling water systems. Mail coupon for complete information.

STA-RITE PRODUCTS • INC.

RUNNING WATER — WORTH FAMILY DEFENDERS

ASK FOR FOLDER

You'll want the facts about the new STA-RITE line. You owe it to yourself to investigate. Be first with the latest in your locality and you'll be set to cash in on a bigger Spring business. **Write Today!** Get the STA-RITE Dealer Story.

(*USE THE COUPON!*)

STA-RITE PRODUCTS, INC. D.E-3 **DELAVAN, WISCONSIN**

Please send illustrated folder covering the STA-RITE line and information on dealer prices and terms.

Name ..... *Address* .....

City ..... *State* .....

WATCH FOR IMPORTANT ANNOUNCEMENTS ON THE STA-RITE LINE IN SUCCEEDING MONTHS

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 3. No. 5

CUSTOMER WANTS QUALITY

JUDGES VALUE BY SERVICE

Accepts Plumber's Advice and Holds Him Responsible

APPRECIATES CHICAGO FAUCETS

There is, perhaps, no other line where the retail customer is more dependent upon the recommendations of the seller than in the sanitary brass goods field. Conservatively, three out of five customers of retail plumbing stores are unqualified to select a faucet on any other than the most superficial grounds. That is but natural.

Therefore, customers expect the plumber to advise them. Time will unfailingly tell them whether his recommendations have been good or bad. Their yard stick of quality-measurement is the service of the faucets they buy, and their experience influences their further patronage.

Customers buy faucets in order to obtain water flow control, and they want and expect efficient service, service that will continue to be satisfactory for a number of years. Most will prefer to pay more, if, by so doing, all doubts on this score will be eliminated.

There is a falacious belief in some quarters that "price" is the prime consideration with most buyers of faucets. It is not, normally. Wherever it is, it is because the plumber himself has encouraged the idea by catering to it.

Sell value, not price. Show Chicago Faucets. Explain their operating principle. Point out the simplicity of making seat renewals, without disturbance to the faucet proper. Show why a Chicago Faucet will last as long as the building and cost practically nothing for repairs. Do these things and you'll find that your customers won't quibble about "price," because they expect to pay a little more for an obviously superior product.

What a Shower! What a Thrill! What a Water-saver!

Plumbers everywhere are introducing their customers to a more invigorating, more exhilarating kind of shower bathing that can be attained with 25 to 50 per cent less water, by selling them Brownie Shower Heads.

ORDERS INCREASED

Following Announcement of REDUCED PRICES

Since the announcement, early in January, of reduced prices on numbers 444 and 540 Chicago sink faucets, orders have climbed steadily. Plumbers realize that nothing has been changed but the prices.

No. 444. Chicago Modern Classic Sink Faucet. Most popular sink faucet in its price class. Massive yet graceful. Quaturn operating unit. All metal, chromium plated. Adjustable female inlets for ½-inch pipe on 8-inch centers (for ¾-inch at no extra cost, when so specified). Also available for 10-inch or 12-inch centers.

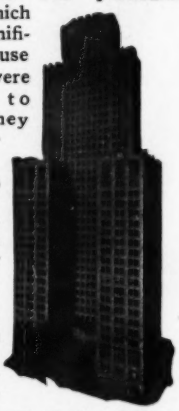
No. 540. Chicago Straight-8 Streamline Classic Sink Faucet. Low, graceful, sweeping lines, particularly effective on low-back sinks. All metal, chromium plated. Adjustable 7¼ to 8¾ inches. Connections for ½-inch iron pipe, female. Also furnished with male arm, adjustable flange, if so ordered.

THIS IS REAL PREFERENCE

"These are for the manager of 'The Arcade' who will not use anything in his buildings and home except your product, and he has a lot of your material installed."—Appended to a recent order for Chicago Faucets.

BARBER SHOP HARMONY A SONG OF PRAISE

The Banker's Building, in Chicago, is equipped throughout with Chicago Faucets. There is one particular group of these which is especially significant because of the severe service to which they are subjected.



The Banker's Building

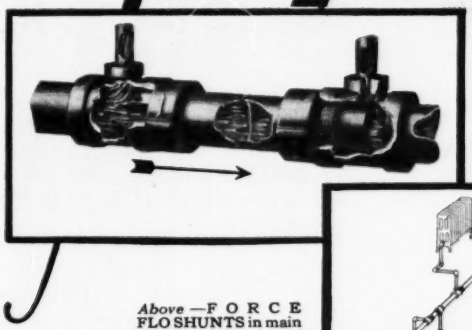
High up in this towering edifice, is the barber shop. Probably no group of men in the world uses faucets more constantly than do barbers. Watch these Banker's Building barbers as they go about their work. On their pleasant faces they wear the well-known ingratiating tonsorial expression of solicitude, and it is unmarred by suppressed vexation; for they are not annoyed by faucet troubles. So they sing the praises of the faucets they so constantly use—not in unison, of course, but in harmony nevertheless. They probably don't even know—nor care—what make of faucets they are; but J. F. Hayes, maintenance plumber for the Banker's Building, knows, and this is what he recently said:

"The Chicago Faucets which have been in constant operation in the barber shop here have given splendid satisfaction. The original pairs are still giving perfect service. They have never needed any attention."

Chicago Faucets last as long as the building. They close with the pressure. Their only wearing parts are as easily renewable as an electric light bulb.

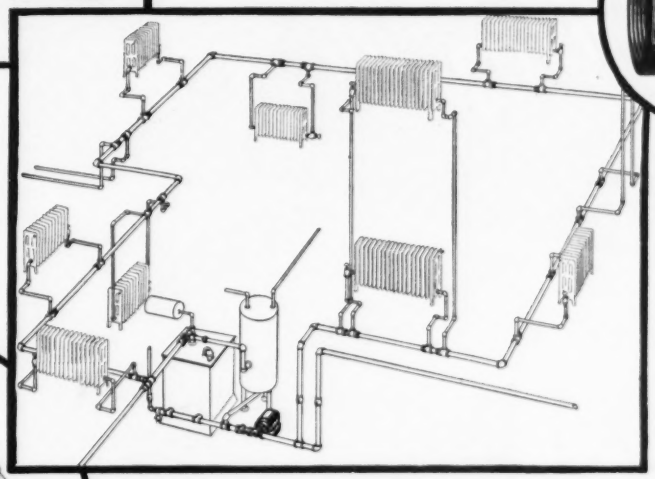
The FORCE-FLO

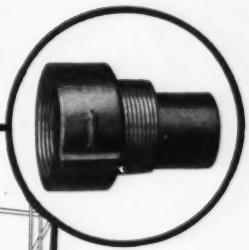
System of Hot Water Heating



Above—FORCE FLO SHUNTS in main showing the action of water at supply and return connections.

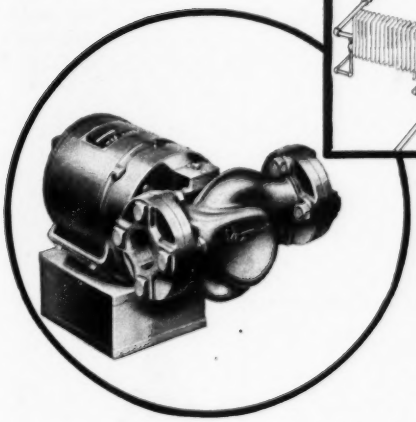
Below—The 1935 FORCE-FLO PUMP provides greater capacity at higher heads.





Above—The FORCE-FLO SHUNT. PATENT #1663271. Other U.S. and Canadian patents pending.

Center—Typical patented FORCE-FLO One Pipe System with FORCE-FLO SHUNTS at each radiator connection.



Smashes all Precedent

FORCE-FLO brings Hot Water Heat within the price range of any heating system regardless of type or cost.

FORCE-FLO *saves* at every step. ***Designing, Labor, Material*** and ***Operating*** costs are cut to the minimum.

FORCE-FLO operates quietly and efficiently to provide perfect heat control in mild or bitter weather.

FORCE-FLO *forces* a quick, even distribution of heat to all radiators.

FORCE-FLO is different! It is simple! It always works! No FORCE-FLO SYSTEM has ever failed. FORCE-FLO ***guarantees*** to the

Engineer—Architect—Contractor—Owner

THE UTMOST IN ECONOMY, EFFICIENCY AND COMFORT.
SEND FOR CATALOG

FORCE-FLO SYSTEMS - PUMPS - HEATERS - CONTROL VALVES - CONVERTERS

THE STEVENS-ROOT CO.
51 E. GRAND AVE. CHICAGO, ILL.

© 1935

Red Jacket's POWERFUL SELLING COMBINATION is making Sales records

LOWEST PRICED Shallow Well Water Systems Dealers can buy. Meet all competition.

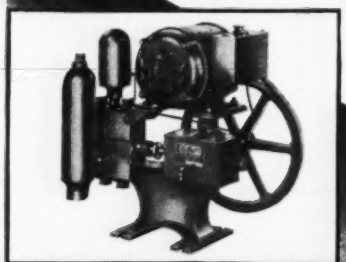
COMPLETE LINE of Shallow Well Water Systems—225, 250, 350 and 500 gallons per hour—and deep well pumps up to 10,000 gallons per hour.

GREATEST PUMP VALUE on market today. In design, quality, and workmanship Red Jacket Water Systems are unsurpassed. Quantity Production permits low prices.

GUARANTEED WATER SYSTEMS — Every Water System tested thoroughly before shipment. Red Jacket Guarantee backed by 59 years of unblemished record.

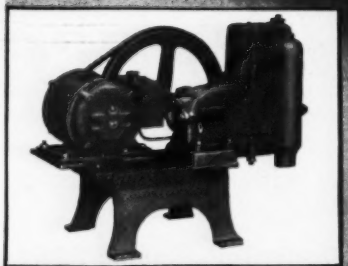
LARGE DEALER DISCOUNTS—Red Jacket has *not reduced* its unusually liberal discounts to the dealer.

All Prices Listed Below Are Retail



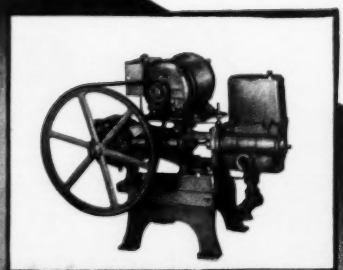
Model 1148 $33.50

Models 1148
225 GAL. PER HOUR
¼ H.P.—110 V. Motor. Pressure Switch with thermal overload coil and button, extra large bearing surface, bronze bearings, stainless steel piston rod, plunger easily removed; easy valve inspection.
With 15-gallon tank.....$39.95
With 42-gallon tank..... 53.50



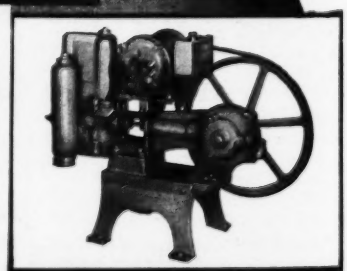
Model 1150C $37.25

Models 1150
250 GAL. PER HOUR
¼ H.P.—110 V. Motor. Pressure Switch with thermal overload coil and button. Special water lubricated bearings.
With 8-gallon tank.....$43.75
With 20-gallon tank..... 46.50
With 42-gallon tank..... 57.25



Model 1153C $48.50

Models 1153
350 GAL. PER HOUR
¼ H.P. Motor mounted on hinged base for easy belt adjustment; bronze main bearings. Lubricated by splash system. Pressure Switch with overload coil and button.
With 42-gallon tank.....$68.50



Model 1155C $69.50

Models 1155
500 GAL. PER HOUR
Motor: ½ H.P.—110/220 V. Thermal overload coil and button on Pressure Switch. Splash lubrication. Heavy steel shaft; extra long bronze crosshead. Hardened steel wrist pin; stainless steel piston rod.
With 42-gallon tank.....$89.50

RED JACKET'S policy of giving the dealer such a profitable and powerful Selling Combination permits Red Jacket Dealers to dominate Water System Sales in their territories.

Write today for New 1935 Catalog and large dealer discounts.

RED JACKET MANUFACTURING COMPANY, Davenport, Iowa

Red Jacket

VISUAL PROOF

OF A PERFECTLY BONDED JOINT

WHEN the Journeyman feeds the solder *into* a STREAMLINE Fitting, it furnishes its own visible proof of a leak-proof, perfectly bonded joint—by its appearance as a continuous silver ring at the end of the fitting around the full circumference of the pipe.

This is proof that he can see at a glance, it tells him, beyond all doubt and without resorting to an actual pressure test, that the joint he has just made, will not leak, that vibration cannot loosen it, that it is permanent and actually stronger than the pipe itself.

The solder ring is not mechanically produced by feeding from the end of the fitting—it occurs AUTOMATICALLY as a result of capillarity, which has drawn the solder THROUGH THE FEED HOLE and from the feed channel in the fitting, causing it to distribute evenly between the bonding surfaces—AND TO FLOW OUTWARDS to the end of the fitting.

STREAMLINE gives the plumbing contractor an article of exceptional sales merit and a potential source of increased business in unprosperous as well as prosperous times. It utilizes a new and successful principle in piping connections AND REQUIRES THE PLUMBER'S SKILL AND TOOLS TO INSTALL. Its remodeling possibilities are unlimited. It cannot be procured from direct-to-you houses or department stores.

Send for Catalog F.

TRADE MARK

STREAMLINE

FITTINGS AND COPPER PIPE

STREAMLINE PIPE AND FITTINGS

PORT HURON, **CO.** MICHIGAN

DIVISION OF MUELLER BRASS CO.

Now you may DISCARD ALL PREVIOUS CONCEPTIONS OF SHALLOW WELL PUMPS

Here IS THE UNIT DESTINED TO WRITE PUMP HISTORY

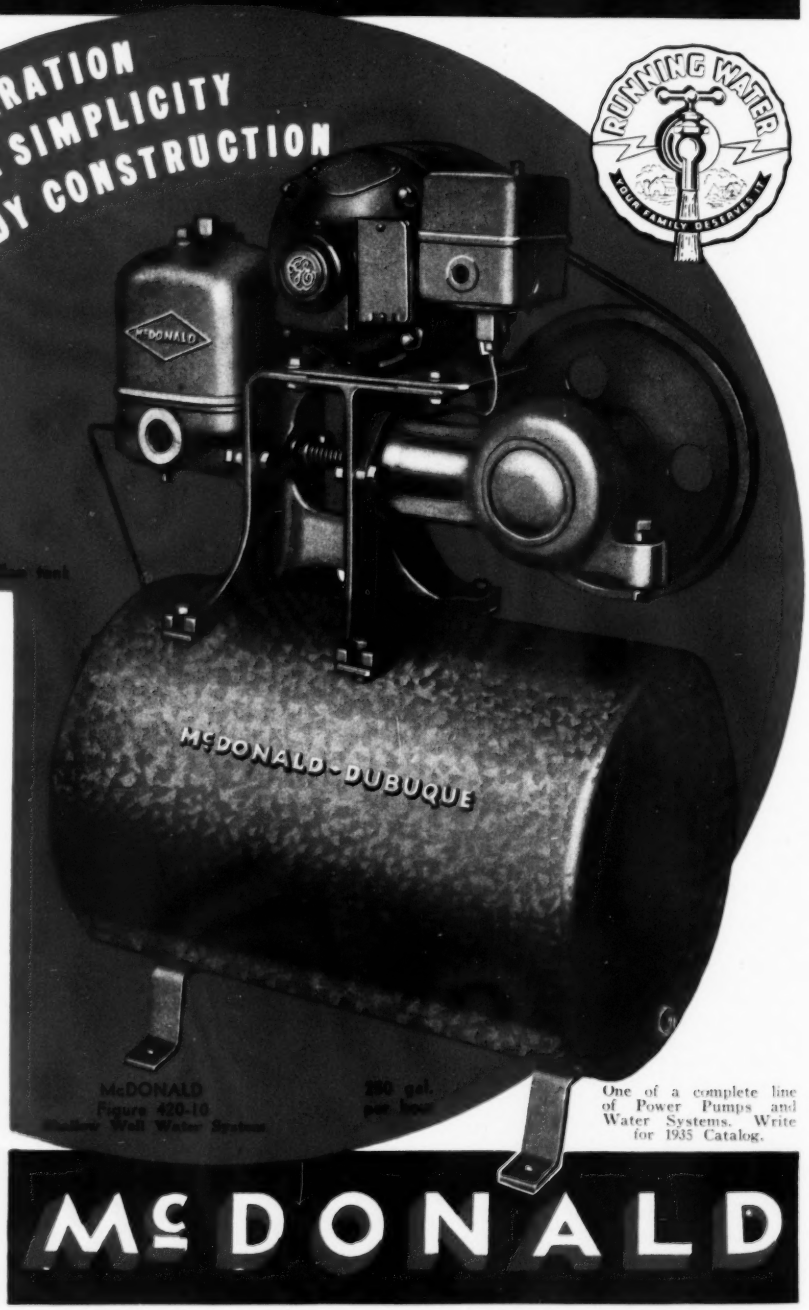
Never Before

SUCH SILENT OPERATION
SUCH AMAZING SIMPLICITY
SUCH STURDY CONSTRUCTION

YET IT'S MADE TO SELL FOR

$45.00

with 10-gallon tank



We ask you, in considering the McDonald Figure 420, to discard all previous ideas of shallow well water systems.

For here is not merely a new model, but a basic development in pump design.

Imagine a pump so precisely built, so free from vibration, that it is *noiseless* in operation. Picture a pump whose standard specifications call for *Monel* metal piston rods, *chromium* plated valve seats, *live rubber* valve discs, *bronze* connecting rods, *cadmium* plated bolts. Think of a pump with such distinctive features as **positive oil lubrication,** exclusive SPRING TENSION Stuffing Box, one-bolt accessibility and full 26-foot suction lift.

Then consider that this pump—complete with standard motor of established quality, automatic safety switch and 10-gallon tank—is priced to retail for $45.00 and you will understand why, in the opinion of authorities, Figure 420 is destined to write a new chapter in the history of shallow well water systems.

Ask us to tell you the full story, including a program of advertising cooperation that converts prospects into customers.

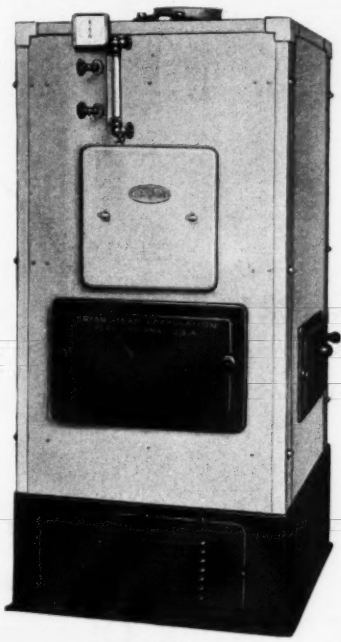
One of a complete line of Power Pumps and Water Systems. Write for 1935 Catalog.

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA

Omaha, Neb. . . Minneapolis, Minn. . . Des Moines, Ia. . . Kansas City, Mo. . . Sioux City, Ia. . . Grand Island, Neb. . . Hutchinson, Kans.

McDONALD

SOMETHING NEW



IMPROVEMENTS

- Water Jacketed Comb. Chamber.
- Greater Heating Surface.
- Greater Water Capacity.
- Larger Tubes.
- Heavier Gauge Copper.
- Fume-Proof Air-Tight Jacket.
- Coal Stoker-Firing.

REDUCED PRICES

Bryan Universal

COPPER TUBE BOILER

Famously Known For Great Fuel Economy When Burning Oil or Gas Now Has, Among Several Other Improvements

A NEW FEATURE COAL STOKER FIRING

Two years of stoker firing test has proven that the original and special design of Bryan Copper Tube Boilers enable us to adopt their outstanding fuel-saving features to

COAL BURNING

No Boiler Changes For The Different Fuels!
No Loss in Boiler Efficiency!

Now Burn Coal, Oil or Gas

IN SAME HEATING UNIT

On Absolutely the Lowest Possible Basis of Fuel Consumption.

ANY GOOD STOKER——
ANY GOOD OIL BURNER, OR——
BRYAN COMPLETE GAS BURNING UNIT

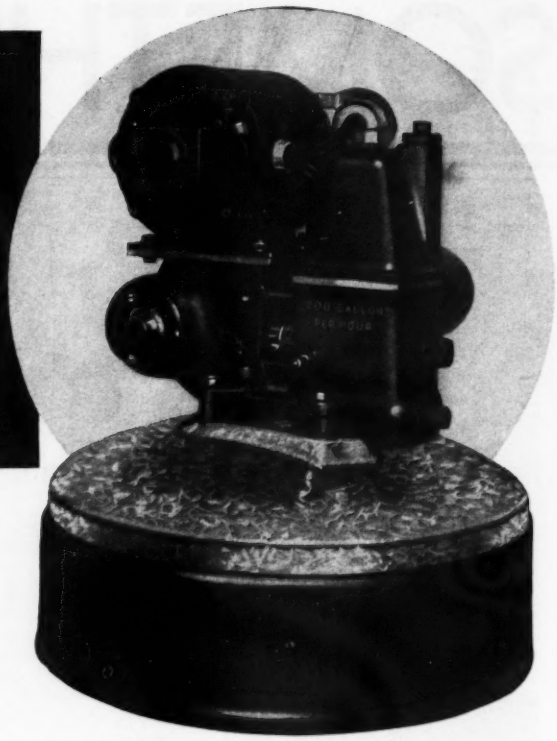
A Full Range of Sizes, and Not a converted old style Boiler.

BRYAN STEAM CORPORATION

PERU, INDIANA, U. S. A.

SPECIALISTS IN STEAM PRODUCTS FOR HEAT AND POWER

MORE than just a *LOW PRICE!*



● This is an F-M Water System year. Prices are lower—but people have been quick to show that they want something more than low price in a water system. They have been quick to understand that F-M volume permits *quality* and *dependability* along with a reasonable price.

Therefore, they have responded to F-M advertising in amazing numbers. They have written by the thousands for complete information about these systems—*and for address of nearest F-M dealer.*

And F-M dealers are cashing in. They are taking these prospects sent to them by Fairbanks-Morse and turning them into orders.

The F-M dealer has more to aid him right now than ever before. He has a decided "edge" on selling water systems in his territory. The F-M dealer arrangement has more to offer you in the way of profits.

You owe it to your business success to use the coupon below for full information.

New Catalog Now Ready

A new catalog, together with a new price list covering the complete line of Fairbanks-Morse Water Systems, is now ready. Pin the coupon below to your letterhead—drop it in the mail and your copy will be sent promptly.

"THE LEADER OF THE F-M LINE"

A complete, low priced, electrically operated, 200-gallon unit, including motor protective relay—no extras. Also a complete line of shallow and deep well systems to meet any requirements.

●

FAIRBANKS, MORSE & CO.

Manufacturers

Chicago, Illinois, U. S. A.

Branches and Service Stations covering Every State in the Union

COUPON

Fairbanks, Morse & Co., Dept. I-3
900 S. Wabash Ave., Chicago, Ill.

Please send me Water System Catalog and information on your proposition for dealers.

Name .....

Address .....

.....

Not Only a Syphon Breaker but a Positive Back Syphon Preventer

PATENT
APPLIED FOR

Si-flo*

BACK SYPHON PREVENTER
for sanitary and hospital fixtures also

For Use On ***Any Submerged Jet Fixture, New or Existing Installations. Another Speakman Development.***

To meet sanitary codes requiring anti-syphon devices we have designed the Speakman Si-Flo Back Syphon Preventer. Tests have proven that when this device is installed in the supply line below the control valve or the flush valve and above the spill line of the fixture, it will *eliminate back syphonage under any degree of vacuum.*

While the Si-Flo Back Syphon Preventer was designed primarily for use with flush valves, it is equally applicable when installed on the low pressure side of any type control valve which is operated intermittently, such as, sterilizers, bed pan washers, dish washers, autopsy tables, slop sinks, continuous flow baths, receiving and prenatal baths, hose sprays, hose connections, developing and service sinks, any submerged jet fixture in the hospital, toilet or home.

The low cost of the Si-Flo Back Syphon Preventer more than justifies the safety which it contributes to the health of the public, and we suggest its use. Literature will be sent promptly.

*Name meaning SILENT FLOW, registered U. S. Patent Office.

Here's How to Get the Truth About Coil Equipped Tanks

See If They Can Answer YES

You know how it is. There are tanks. And then again there are tanks. All of them look pretty much alike. Everybody claims their's is the best. Some one of them is really telling the truth. How are you going to tell which that one is? Here is a set of questions that unless they can say yes to every one and prove that yes, you can count them out.

The Burnham Taco Tank promptly answers yes to all of them. And then it asks you to ask any others that you may think ought to be asked.

Is the Tank guaranteed for six years?
Is Tank tested to 300 lbs.?
Is the guaranteed working pressure 127½ lbs. Mass. Reg.?

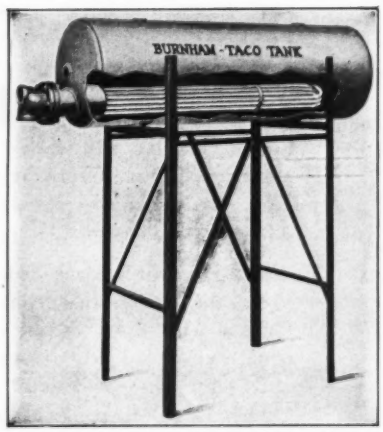
Is the Tank built of copper bearing steel?
Is the thickness of Tank metal—Shell? Head?

40 Gallon	10 Gauge	7 Gauge
66 Gallon	10 Gauge	7 Gauge
82 Gallon	10 Gauge	7 Gauge
100 Gallon	9 Gauge	7 Gauge
120 Gallon	7 Gauge	3 Gauge
140 Gallon	7 Gauge	3 Gauge
180 Gallon	7 Gauge	3 Gauge

Does the Coil have this much heating surface?

40 Gallon	6 Square Feet
66 Gallon	6 Square Feet
82 Gallon	7½ Square Feet
100 Gallon	7½ Square Feet
120 Gallon	7½ Square Feet
140 Gallon	9 Square Feet
180 Gallon	13½ Square Feet

Is the Coil made by Taco?
Is the Coil tested to 500 lbs.?
Does the Coil have a bronze tube plate?
Are the Tubes in the Coil properly vented?
Are the Tanks nationally advertised?
Is every installation licensed under Taco-Abbott Patent No. 1654396?
Does the manufacturer offer prospect literature free?
Does the manufacturer have engineering service to offer?



The Taco Coil in the Burnham Tank is over-size to take care of peak loads. Tubes are expanded, not brazed, into a bronze tube plate. Stands are furnished at a slight additional cost.

GUARANTEED
for 6 years

Each coil is tested to 500 lbs.

MADE OF
Copper Bearing Steel—Also in Everdur and Copper

Send for special circular on the Burnham Taco Tank. It has some real meat in it you should have.

Burnham Boiler Corporation

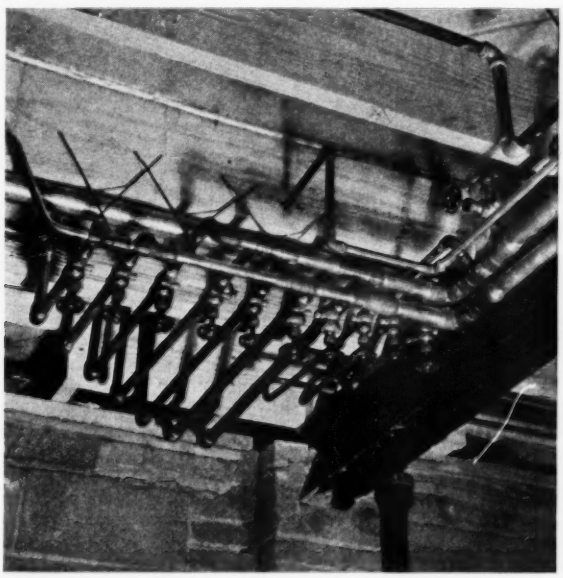
IRVINGTON, NEW YORK

Representatives in all Principal Cities of the United States and Canada

REVERE
COPPER WATER TUBE
makes a good
silent partner

"Revere Copper Water Tube has made a real hit with me because it makes a hit with the people with whom I deal—my customers and my men.

"Ever since I started using it, my business has picked up because this tube (and its installation method) is right in keeping with the times—where, in order to sell something, you have to give the customer a lot for his money. From my standpoint, it's good too—while I give the customer a break, I make a profit.



Main manifold installation in a Cleveland residence. Revere Copper Water Tube (Type L, Hard Temper) and Streamline soldered Fittings were used. Reed & Campbell, Plumbing Contractor.

"Here's another angle. This tube has so many uses that it's opened up new business for me. With three types to choose from (K, L, M) and the soft and hard tempers, I can select the one that's just right for the job and the customer's pocketbook.

"Take this soft temper tube for example: it's a life-saver on replacement and modernization jobs for the hidden piping because it cuts down on the house wrecking. I can point out a real saving to the customer there both in money and in freedom from mess.

"My men like Revere Copper Water Tube and Streamline Fittings too. As one of them said, 'You got to be good to solder a joint, just like you had to be good to wipe a lead joint.' When a job with Streamline Fittings and Revere Tube is finished, it's a credit to a good workman. It's like the new cars—modern and neat—has that look of speed.

"As for my customers—I know they like it because more than one has told a friend about this, and that's how I get a good part of my work.

"Why shouldn't they like it—pure copper (and that means lifetime piping) at prices that are only a little higher than for rustable pipe."

The contractor who told us this was saying what we have believed all the time. Revere Copper Water Tube is a good silent partner because it delivers the goods. And Revere Distributors and Revere itself, which has been in the business of working copper since 1801 when Paul Revere started this business, are good partners.

Revere Copper *and* Brass
INCORPORATED

Founded by Paul Revere 1801

EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY · MILLS: BALTIMORE, MD. · TAUNTON, MASS.
NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL. · SALES OFFICES IN PRINCIPAL CITIES

NRA CODE

Don't let

● The Modernization and Repair activities of the Federal Housing Administration have helped you to get more business. The Home Construction program for 1935 will mean even more business for you. People will be building homes in your locality.

They will be depending upon you for good materials and good work. They look upon you as an expert. DON'T LET THEM DOWN.

They can see the boiler, the radiators and the plumbing fixtures you install—these are the things that show and can be easily judged for quality.

Don't let them down by skimping on the all-important hidden piping. For trouble-free installations use the finest pipe and fittings to be had, they cost no more than ordinary fittings. For a guaranteed job, good fittings are a necessity.

GRINNELL COMPLETE

HANGERS

FITTINGS

THERMOFLEX TRAPS

them DOWN!

Standardize on Grinnell Fittings!

The "G" on all Grinnell Fittings is your guarantee of uniform high quality—of trouble-free service.

FOR YOUR CONVENIENCE

Catalog of Grinnell Fittings is readily available. You can get a copy from your nearby Grinnell Distributor or by writing to us. Ask for catalog No. 3.

GRINNELL COMPANY

EXECUTIVE OFFICES PROVIDENCE, R. I.

Branch Offices in Principal Cities

THE GRINNELL DISTRIBUTOR IS ALWAYS READY TO HELP YOU

He maintains all these services for your assistance.

- Complete stocks of finest quality fittings
- Immediate Delivery
- Immediate price and product information
- Complete catalog service on any item or line
- Competent knowledge of product applications
- Material estimates for any set of plans
- Double guarantee—he has selected his lines carefully so that he can give you his own guarantee plus that of the manufacturer.

It pays to depend upon the Grinnell Distributor for all of your piping requirements.

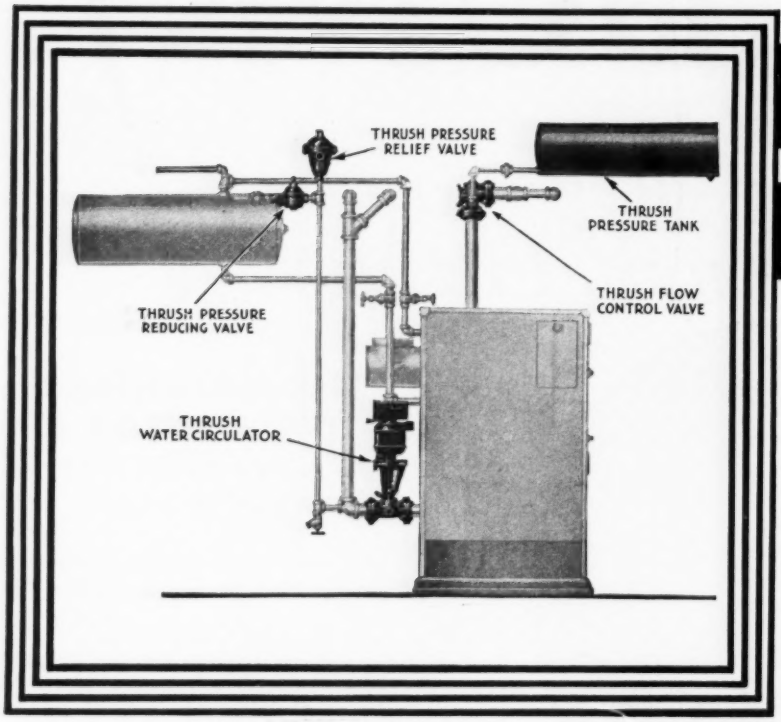
PIPING SERVICE

AUTOMATIC SPRINKLERS

THERMOLIER UNIT HEATERS

FABRICATED PIPE

Makes hot water heating QUICK HEATING



THRUSH FLOW CONTROL SYSTEM

guarantees your customer efficient heat without overheating or waste of fuel

Thrush Flow Control System makes hot water heating "quick heating"—quicker than steam. A reservoir of hot water is kept available for instant distribution throughout the heating system. When heat is needed, forced circulation delivers hot water into every radiator in every room quickly. When room temperature is restored circulation stops. Therefore there is no overheating and no waste of fuel.

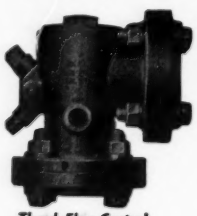
This hotter water in the boiler also makes the auxiliary water heater more efficient and provides a really hot domestic water supply in winter or summer at trifling cost.

Thrush Flow Control maintains temperatures with a uniformity never before possible with hot water heat. It reduces the running time of the burner and saves fifteen to thirty per cent of the year's fuel bill.

★ THE MODERN BOILER-BURNER UNIT DEMANDS THRUSH FLOW CONTROL

YOUR business depends upon the satisfaction of your customers. Installations of unusual efficiency always *sell others for you.* Therefore, it pays to equip every Boiler-Burner Unit or other automatic hot water heating job that you install with Thrush Flow Control System. It makes any hot water heating plant so much more efficient with such slight additional investment that *increased sales are easy.*

H. A. THRUSH & CO.
PERU, INDIANA


Thrush Flow Control Valve (Patented)

Thrush Water Circulator

THRUSH FLOW CONTROL FOR HOT WATER HEAT

MAIL THIS COUPON!

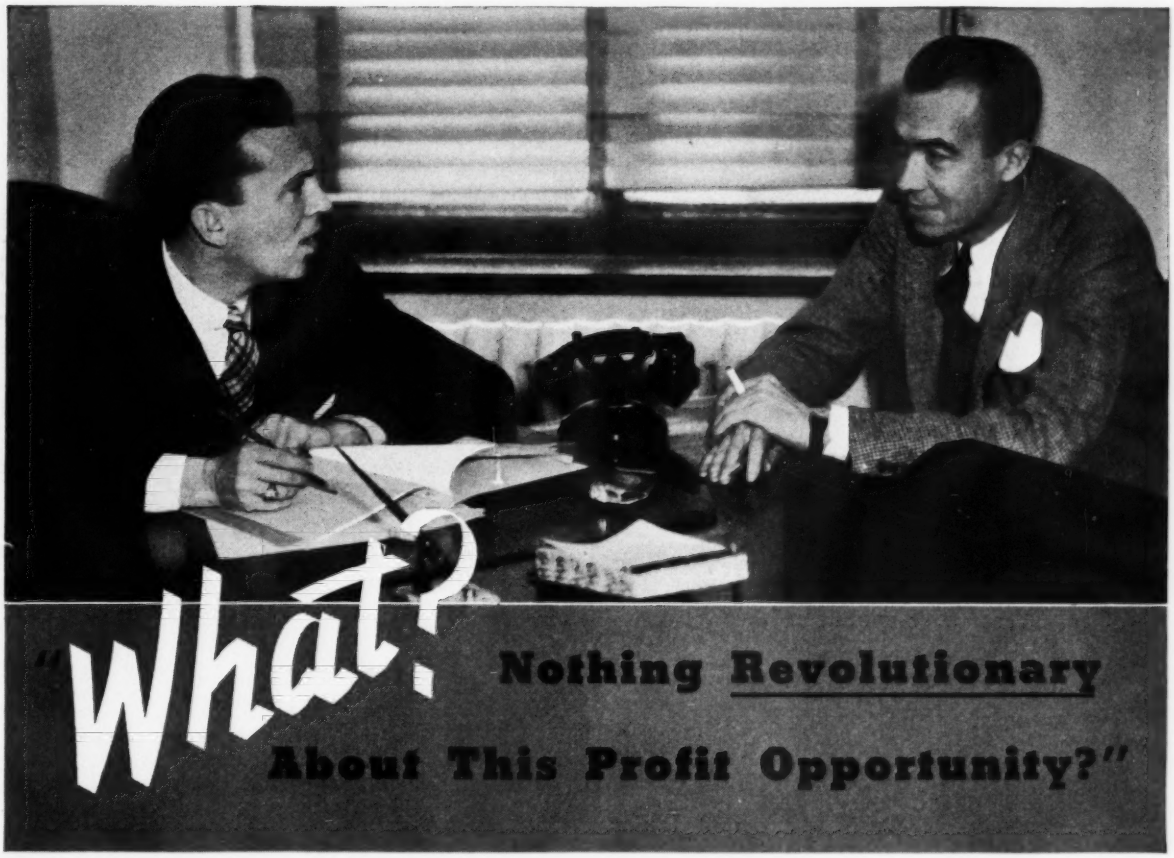
H. A. Thrush & Co.,
Box 459, Peru, Ind.

Please send booklet describing Thrush Flow Control Heating System and its advantages for use with automatic firing devices.

Name .....

Address .....

City ..... State .....



NO you can't conscientiously call the Delco-Heat franchise "revolutionary." It's simply a case of plain facts and authentic figures. But almost without exception, those dealers who have investigated and who are now selling Delco-Heat report fast sales and worth-while profits.

Attractive as the Delco-Heat proposition has been in the past, it will be even better in 1935. For a new element has been injected into the picture to make selling easier and more profitable than ever before. This new aid to selling is the cooperation of the N.H.A. that permits Delco-Heat dealers to sell to responsible buyers with *no down payment and up to 3 years to pay!* This automatically creates thousands of new prospects for Delco-Heat.

Furthermore, Delco Appliance Corporation offers a *complete line* of oil heating equipment, including the simplified and inexpensive Delco-Heat oil burner—the Delco-Heat Boiler, and the Delco-Heat Conditionair—a heating and air conditioning unit that purifies, humidifies, automatically heats and circulates the air through every room in the house. Delco-Heat dealers are in a position to fill the needs of every prospective buyer. No lost sales because of a limited number of types and sizes. And remember—every Delco-Heat unit is backed by the Delco Appliance Corporation, a General Motors subsidiary. This gives buyers confidence in the product and reduces sales resistance.

A Proven Merchandising Plan

In addition to all these attractive features, Delco-Heat also offers to dealers a hard-hitting merchandising plan that is backed by extensive national magazine advertising, localized dealer newspaper advertising, radio advertising over Columbia network and forceful direct mail, dealer helps, store and window displays.

Exclusive franchises are still available in desirable territories. Mail coupon for full details.

DELCO•HEAT

A PRODUCT OF GENERAL MOTORS

A complete line of automatic oil heating equipment for domestic and commercial applications.

DELCO-HEAT

DELCO APPLIANCE CORPORATION

Dept. B-214, Rochester, N. Y. • Subsidiary of General Motors

Please send me full particulars about the Delco-Heat franchise.

Name.....

Address.....

. . . SAYS THE CLASSIFIED TELEPHONE BOOK

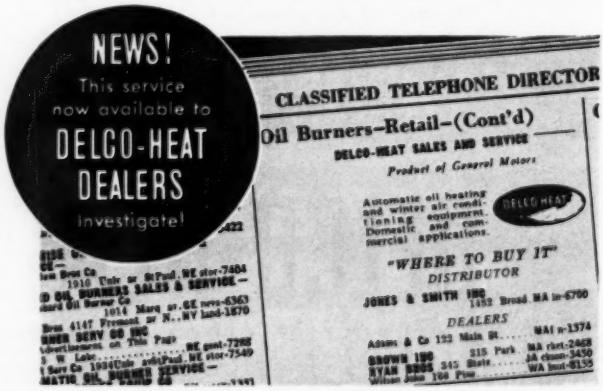
It's easy to "close" a sale when the prospect has a decided preference for the brand you carry. It's easy —when you and the prospect are face to face.

Delco-Heat has adopted "Where to Buy It" Service because it brings Delco-Heat prospects and dealers together. The Delco-Heat trade mark is listed in classified telephone books (see below.) You list your name below the trade mark as an authorized dealer.

Prospects look there for the Delco-Heat name and are directed to your place of business.

Your listing costs only a few cents a day. For that small amount you get year-round representation in all the telephone homes of your community. And telephone subscribers really *use* the classified; Bell Surveys show that more than 85% use it to help with their buying. That's why the classified gets sales results; that's why dealers now listed in the yellow pages are so well satisfied.

See that you are adequately represented in the next issue of your classified directory—and if you are an *authorized* Delco-Heat dealer, make certain that you are listed under the Delco-Heat trade mark.



To *some* of these prospects *now* . . . *and to others, week after week*

1. Homes with rusting range boilers.
2. Homes without hot water systems.
WE ARE CO-OPERATING
BETTER · HOUSING
PROGRAM
3. Homes being built now.

YOU can sell Storage Tanks of *Rustless* EVERDUR

NOT ONE, but *three* classes of homes without the convenience of a plentiful supply of rust-free hot water . . . and every one a live prospect for an Everdur storage tank (range boiler) or an automatic heater with a tank of rustless Everdur!

Everdur is copper, scientifically alloyed to provide the strength and welding properties of steel! And Everdur cannot rust! Your customers and prospects will appreciate that fact particularly, for all of them want hot water that is rust-free . . . not only when the tank is new, but indefinitely.

Why don't you plan and make a special drive for Everdur range boiler business this year? Every installation that you sell increases your profits . . . and helps your reputation with the better and more desirable type of customers. Everdur tanks are standard with leading makers of automatic water heaters and range boilers. Additional data about Everdur . . . an exclusive Anaconda metal . . . will be mailed on request.

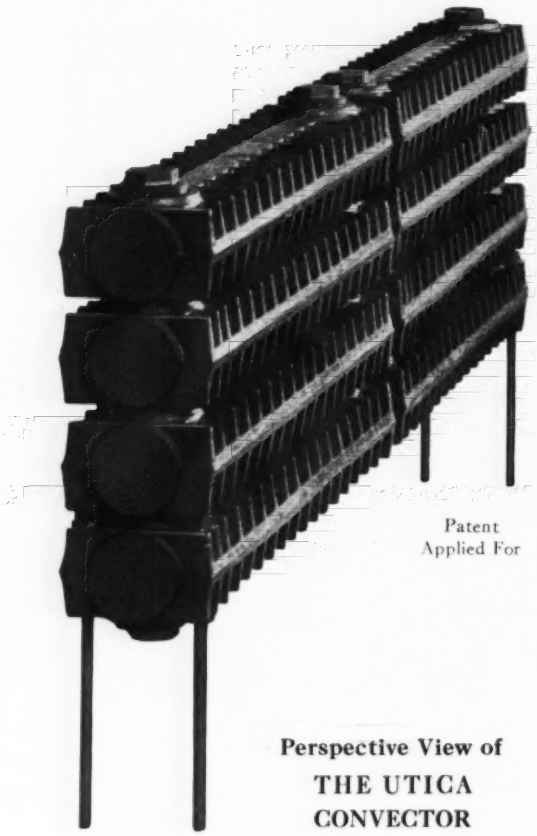
ANACONDA
from mine to consumer

"Everdur" is a registered trade-mark identifying products of The American Brass Company made from alloys of copper, silicon and other elements.

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

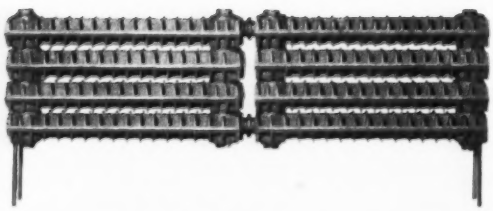
EVERDUR METAL *for* TANKS

It Stands the Tests . . .



Patent
Applied For

Perspective View of
THE UTICA
CONVECTOR



Side view of the UTICA CONVECTOR, 3½ in. wide, 37½ in. long. Available in widths of 3½ in., 5½ in. and 7½ in.

UTICA Cast-Iron CONVECTOR

Both engineering tests and installation experience have proved the Utica Cast-Iron Convector to be extraordinarily efficient. Made of cast-iron, the permanent material, it is simple in construction, entirely durable, and equally well adapted for steam, vapor or hot water systems. The widely spaced fins will not clog and offer minimum resistance to air flow. The cored space is ample to insure positive air elimination and balanced circulation of steam or hot water. The Utica Convector is made of three widths and in multiples of 5 in. for any length over 18 in. The standard assembly is four sections high but can be made more or less on special order.

Deferred Payment Sales Plan

Write for details of our deferred payment plan in cooperation with the Federal Housing Administration and tested sales plan that produces profitable business.

UTICA RADIATOR CORPORATION

UTICA, NEW YORK

Manufacturers of Boilers, Radiators and the famous Humid-Heet Radiators

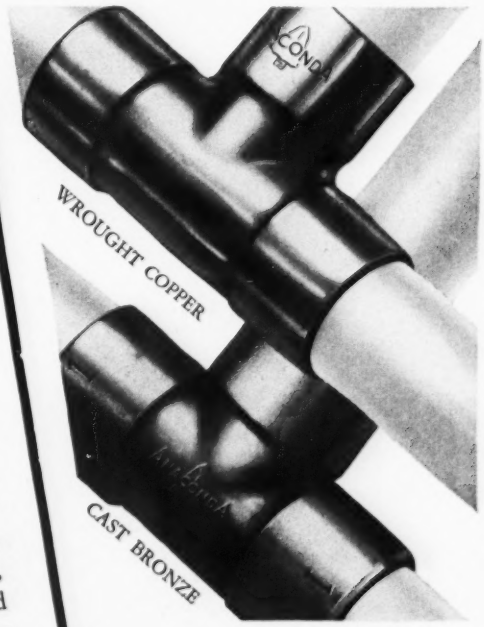
"I've tried all kinds, and I like Anaconda Fittings best."

6 *Advantages of* ANACONDA Solder Fittings

1. Tested to 90 lbs. air pressure under water . . . the equivalent of 400 to 450 lbs. water pressure.
2. Precision made to closer tolerances . . . then double checked with "Go and No-Go" gauges.
3. Smooth inside surfaces permit quick, thorough cleaning . . . essential to satisfactory soldering.
4. Made with longer cups which provide longer and stronger bonds . . . more support for the tubes.
5. Higher shoulders for the tubes to butt against . . . more area for solder bond at end of tube . . . stronger joints.
6. *Easier to Install.* Save time and money . . . do not require special layout because of fittings. Solder may be introduced at *any* point along the edge of Anaconda fittings.

Anaconda Fittings are available in both wrought copper and cast bronze, whichever you prefer. Anaconda Deoxidized Copper Tubes . . . furnished both hard and soft . . . are made to the accurate, standardized dimensions so essential for sound, leak-proof joints. For the highest quality threaded S. P. S. assembly, Anaconda "85" Red-Brass Pipe is recommended.

THERE is nothing like actual experience to determine what brand of the various solder fittings is the best. But you can take it from the many contractors who have used them all that Anaconda Fittings have no superior from any standpoint. A glance at the six reasons at the left will tell you why.



Anaconda Deoxidized Copper Tubes are furnished hard and soft in straight lengths, soft in coils, and in two wall thicknesses (Type "K" and Type "L"). These conform to U. S. Government and A. S. T. M. specifications. Type "K", the heavier, is recommended for underground service and general plumbing purposes. Type "L" is also suitable for interior plumbing.

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

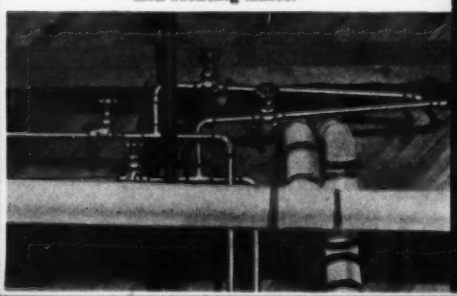
ANACONDA
from mine to consumer

ANACONDA COPPER & BRASS

BRIDGEPORT

NEW WORK

Use "Bridgeport" Brass or Copper for Plumbing and Heating Lines.



REMODELING

Copper Water Tube can be quickly "fished" th floors and walls.

BRIDGEPORT COPPER WATER TUBE

A modern piping of pure copper that enables the Master Plumber to install a *rust-proof* job at prices competing with rustable pipe. In hard, straight lengths or flexible in coils—adapted to all standard makes of soldered or flared fittings. For interior plumbing and heating lines, underground service, fuel oil lines, sprinkler systems.

PLUMRITE BRASS PIPE
COPPER WATER TUBE

A Profit Line With a Prestige Value

UMRITE BRASS PIPE
e world's finest piping mate-
l, used where utmost strength,
rmanence and corrosion-
roof qualities are essential.

THE materials you use on any job have a double obligation to *you*. They must justify your choice by making good *one hundred per cent.* And the price must be satisfactory to your customer and pay a worthwhile profit to you.

Bridgeport rust-proof products stand squarely on their record. Plumbing and Heating Contractors the country over can testify to their value through years of personal experience. Satisfied owners of homes, public and private buildings and large industrial plants, hold the same conviction. Quality . . . Profit . . . Prestige. The Bridgeport name carries all three.

Plumrite for Permanence

Bridgeport Brass Pipe S. P. S., with over 50 years of manufacturing experience, is recommended as the best material for both hot and cold water lines. It is a *standard specification* when the very finest quality is demanded—scores of famous modern skyscrapers being protected by this permanent, rust-proof piping. For a *perfect job* in larger buildings, where rugged strength to stand the stress of generations of use is required, put in *Bridgeport Brass Pipe.*

Where costs must be kept down, where building budgets are limited, use *copper water tube.* It is not so thick-walled as brass; you can bend it around corners, you can snake it through floors and walls in replacement jobs with but little tearing up. You also save money for your customers in fittings, securing strong, leak-proof joints by means of soldered fittings.

Ask Any Recognized Jobber

Plumrite Brass Pipe and Bridgeport Copper Water Tube, in all standard sizes, and the new and modernized complete line of Bridgeport Plumbers' Brass Goods are carried in stock by most jobbers in leading cities. There is one near you.

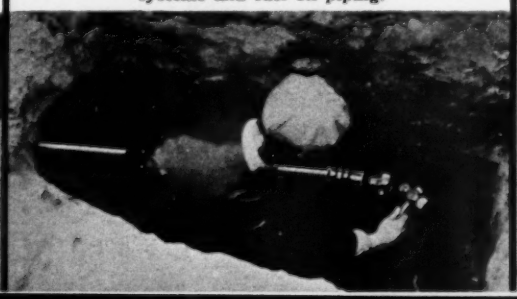
A fixed policy of selling *only through accredited jobbers* protects you on price and quality. Become a regular "Bridgeport" customer. You'll quickly find you can build profits as well as piping systems . . . *goodwill* as enduring as your *installations.* Booklets giving helpful hints on piping will be mailed free.

BRIDGEPORT BRASS COMPANY, Bridgeport, Conn.

Established 1865

FREE-FLOW
ble pipe clogs. Bridgeport Brass or Copper stays clear and clean.

UNDERGROUND
Copper Tube is ideal for water service, sprinkler systems and fuel oil piping.



SATISFACTION
"Bridgeport" means Profit for the Contractor—Safety for the Owner.

INTERNATIONAL

INTERNATIONAL TRUCKS

ARE ALL TRUCK

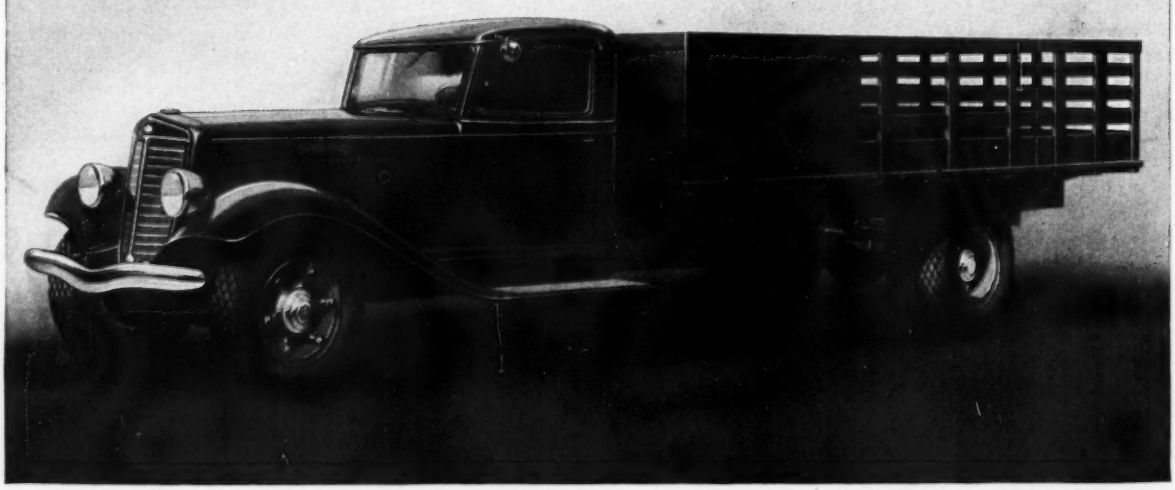
In every inch of Design

In every ounce of Construction

TRUCK quality must be of a different stamp than PASSENGER-CAR quality. Truck users want rugged stamina, for rigorous service! That is why you have lately seen in the truck advertising of some manufacturers so much talk of "all truck." They are aiming to satisfy the demand. But they are only now claiming what International Trucks have delivered for many years—EXTRA capacity for taking punishment and giving value. For more than twenty years the International Truck builders have built only trucks. No automobiles—no tempting opportunity to compromise. The new streamlined Internationals, with all their beauty of line, give you International ALL-TRUCK QUALITY. You can see them at all International branches and dealers. International Harvester Company of America, Inc., 606 South Michigan Avenue, Chicago, Illinois.

TRUCKS FOR ALL NEEDS, DOWN TO THE HALF-TON MODEL C-1 IN THE LOW-PRICE RANGE.

2 TO 3-TON MODEL C-40 IS SHOWN BELOW.



DEMING

Leaders for 1935

YOU PROFIT BY DEMING PROGRESS

Again Deming pushes forward. Once more Deming engineers dig up new opportunities for you. Here is an outline of the new Deming developments for 1935 . . . NEW PUMPS . . NEW RATINGS . . NEW PRICES . . . a program that means new business and new profits for every Deming dealer.

NEW **Duplex Pump.** For general and automatic service. Capacities 500 to 1800 gal. per hr. Pressures up to 125 lbs.

NEW **Cellar Drainer.** For 2-, 3-, 6- and 8-foot sumps.

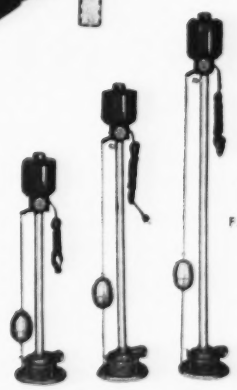
NEW **Increased Ratings for Fig. 562 Worm Drive Pumps.**

NEW **Increased Ratings for Fig. 1062 Deep Well Pumps.**

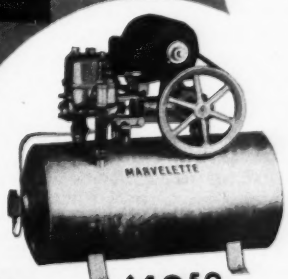
NEW **Low Prices** on "Oil-Rite" Shallow and Deep Well Systems, Worm Drive Deep Well Systems, and other miscellaneous items.

Write now for complete information, including our **NEW** Supplementary catalog, and **NEW** 1935 prices.

$113.00 and up
F.O.B., Salem, Ohio
New Duplex
for Shallow Wells



$35.00 and up
F.O.B., Salem, Ohio
New Cellar Drainers



$49.50 and up
F. O. B., Salem, Ohio
Fig. 1975 "Marvelette"
for Shallow Wells

$116.00 and up
including cylinder
F.O.B., Salem, Ohio
Fig. 1062 "Oil-Rite"
for Deep Wells

$95.00 and up
including cylinder
F.O.B., Salem, O.
Fig. 562 "Worm Drive" for Deep Wells

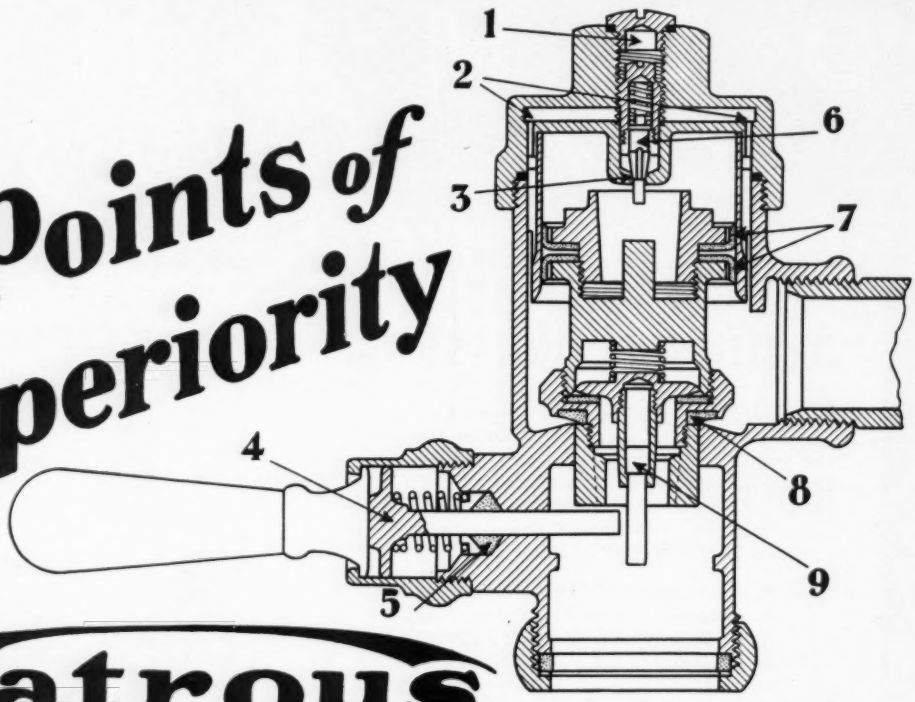
$68.00 and up
F.O.B., Salem, O.
Fig. 2095 Marvel
for Shallow Wells

THE DEMING CO. . *Established 1880* . **303 BROADWAY, SALEM, OHIO**

9 Points of Superiority

in the

Watrous



IMPERIAL FLUSH VALVE

THE saving in water consumption maintained in all Watrous Flush Valves is due to a number of features of design, which provide against all possible handicaps. Other details make sure of flushing action, even at high elevation where pressure is low.

Both diaphragm and piston types are included in the Watrous line. One of the piston types, the IMPERIAL, is shown above in section, and a few of its features which make for economy and efficient operation are listed on the right.

Watrous Majestic Flush Valve (Diaphragm Type)

Adjustment in a Few Moments

All Watrous Flush Valves are regulated from the outside, without shutting off the water, dismantling parts or disturbing connections. This greatly simplifies the work of adjusting the length of flush to the needs of the fixture. The bypass is cleansed at each flush, an important safeguard against clogging and irregular timing. In each Watrous design, a full waterway maintains the proper rate of flow to flush the most exacting fixture. There is always sufficient volume and "punch" for a complete flush, even when pressure is low.

Order from jobber; write also for Plumbing Catalog No. 433

1. Outside regulation without shutting off water.
2. Double bypass port prevents clogging in dirty water.
3. Bypass self-cleansed at each flush.
4. Handle construction assures easy operation.
5. Packing with constant tension prevents leaking.
6. Regulation method permits full waterway, whether for long or short flush. Full flow with necessary "punch."
7. Double cup leathers with full travel prevent scoring and scale ring.
8. Beveled main seat washer. Special composition—easily replaced.
9. Non-hold-open feature; uniform flush, whether handle is released or not.

IMPERIAL BRASS MFG. CO.

1231 West Harrison St., CHICAGO

Note This Important Feature

Fairbanks *Improved* Valves Assure Increased Life, Decreased Maintenance and Easier Renewal

The radial seat, between the body and bonnet of Fairbanks Improved Bronze Globe and Angle Valves, not only insures a tight joint at this important point, but also insures perfect alignment of all parts. The proper alignment of parts decreases wear and when the valve is taken apart for disc replacement, the new alignment will be perfect.

The radial seat is drawn to a tight joint by the union nut without sliding or scraping the surface of the seat. This feature increases the life of the valve and assures a tight body-joint after every assembly.

The Disc is an improved composition of long-fibred asbestos that will not crack or flake off. It will not only serve efficiently in the control of steam but will also give excellent service on hot and cold water. Having greater resiliency, absolute tightness is assured.

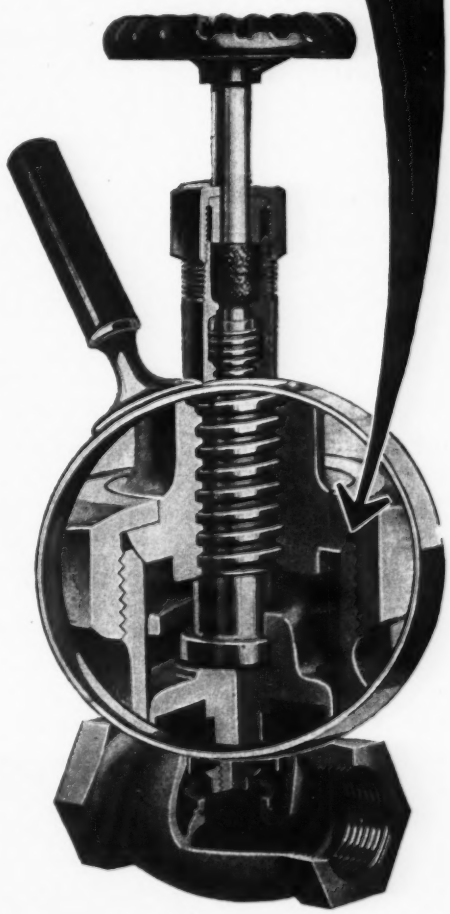
Moreover, the slide-on disc holder is so guided that it will not bind or stick regardless of the position of valve. The design of the disc nut tends to throttle the action against the disc, thereby prolonging its life. Disc rings of any standard make will fit into this disc holder.

The heavy, rolled-bronze rod Stem, with an average tensile strength of 65,000 lbs., has Acme threads of a carefully selected pitch. More than five threads are in contact with the bonnet at all times. These features insure easy operation and added strength.

When the valve is fully opened for repacking under pressure, the protected top seat above the threads on stem assures a clean tight joint.

These and other improved features mentioned in our new booklet make Fairbanks U-01 and U-03 Valves an outstanding buy.

Write for booklet, or mail the coupon.



THE FAIRBANKS COMPANY

Manufacturers of Valves, Hand Trucks and Wheelbarrows

395 Lafayette St., New York, N. Y.

Boston, Pittsburgh — Distributors in Principai Cities

FAIRBANKS IMPROVED Globe and Angle VALVES

MAIL COUPON TODAY!

The Fairbanks Company,
395 Lafayette St., New York, N. Y.

Without obligation on our part, kindly send a copy of your valve catalog.

Name .....

Address .....

City .....State.....

ARE YOU WALKING PAST PROFITS ON YOUR WAY TO WORK?

BUSINESS-FISHING is good these days—if you bait the hook! What we're trying to put over is just this: There are a lot of prospects in your own neighborhood who can be made into customers—if you use the right method of approach. Go out and *sell* them and (this is important) use an *idea* for bait.

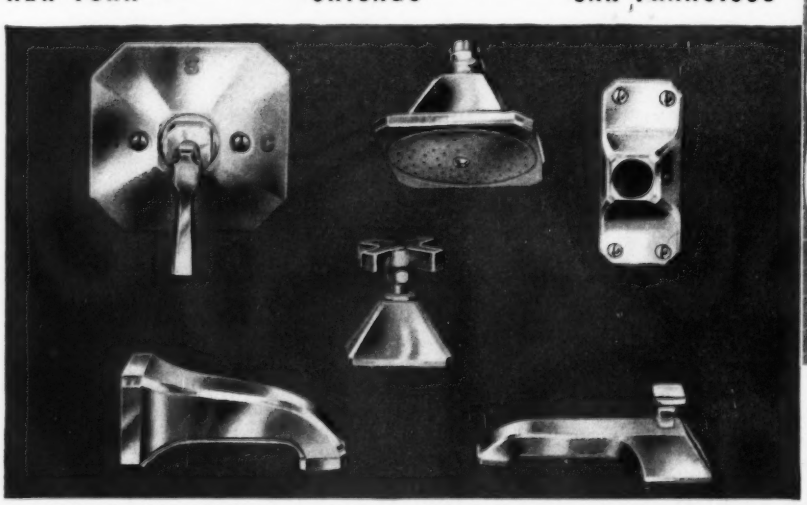
Sign up Mr. A by showing him the convenience of the ingenious Scovill Fold-Spray. Mrs. B may be sold on a beauty story, backed up by pictures or samples of Scovill's dynamic, handsome Vogue Fittings. An offer to check over all his plumbing may get some replacements out of Mr. C. And so on. One plumber has reported $80,000 in extra business from idea selling. One sale leads to others—large and small—and the total mounts.

The quality story that goes with all Scovill Products makes your selling that much easier. And Scovill's merchandising helps, fair prices, full co-operation make profitable business simpler. Ask your jobber for information on the Scovill line. Or write to the address below.

SCOVILL

SCOVILL MANUFACTURING CO. • *PLUMBERS' BRASS GOODS DIVISION*
WATERVILLE CONNECTICUT
SCOVILL FLUSH VALVES • SHOWER, BATH AND LAVATORY FITTINGS
MISCELLANEOUS PLUMBERS' BRASS GOODS

NEW YORK CHICAGO SAN FRANCISCO



SCOVILL VOGUE FITTINGS. Modern, beautiful dynamic design. Heavily chromium plated. For tub, shower and basin. Effective in modernizing old bathrooms.

SCOVILL FOLD-SPRAY. Attractive, space-saving shower curtain unit. Folds back out of the way when not in use. Opens easily. Gives ample space inside. Full splash protection for rest of room. Hangs free—no close, clinging, clammy curtains.

How You Can Sell More Domestic Water Systems

Free, for use in your newspaper advertising, a two-column-wide mat of this attractive illustration

USE FACTS LIKE THIS: 45 to 60 *tons* of water are carried annually for household uses alone, in a home where a water system has not been installed. One person's time for one solid month is required—if one person does it all—and that person walks hundreds of miles to complete this back-breaking job. *A good domestic water system lifts this load from the shoulders of the womenfolks*—gives them more time for better things. And it works faithfully, year after year, for but a few cents a day. The publication offered you on this page is packed with valuable information that you can use to boost your sales. Use it. It will help you.

G-E EQUIPMENT HELPS YOU SELL

General Electric motors for domestic water systems are built the way you would build them to make your selling job easier. *Built by men who know motors, for men who know pumps,* these motors assure long, carefree operation under adverse conditions. They need only a few drops of oil once a year to keep them running smoothly. They are quiet. Their properly designed bases enable the man of the house to adjust the belt tension quickly and easily. Their handy provision for easy inspection of commutator and brushes is an appreciated convenience.

Ask that the pump you sell have a motor as modern, as finely built, as dependable, as the pump itself—a GENERAL ELECTRIC MOTOR. And for maximum customer satisfaction, connect it to a G-E automatic pressure switch with G-E wire.

(Right) This seal, as a window sticker, and a running-water animated window display are available through the Electric Water Systems Council, 228 West Ontario St., Chicago, Ill.

MAIL THIS COUPON FOR YOUR COPY OF "RUNNING WATER PAYS BIG DIVIDENDS"

General Electric Company, Dept. 6 -201, Schenectady, N. Y.

☐ Please send me my copy of "RUNNING WATER PAYS BIG DIVIDENDS"

☐ Also, please send me the newspaper mat, as offered.

I am now selling ..... pumps.
(Make)

NAME .....

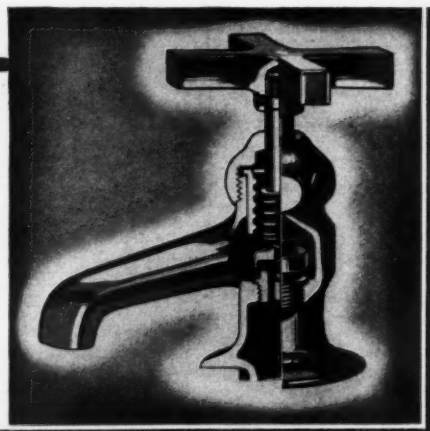
COMPANY .....

STREET ..... CITY ..... STATE .....

070-78

GENERAL ELECTRIC

An All Crane Job
is a guarantee of profits

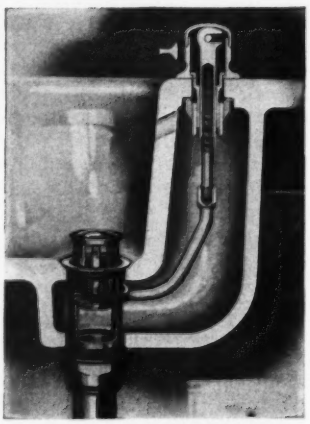


LONGER LIFE FOR FAUCETS is found in the NEWSLEEVE trimming unit—it slips in like a cartridge, gives a faucet a new life-span, without even removing it from the fixture! Also has renewable seats.

A four-lane highway to increased business

1. **A complete line—fittings to fixtures!**
2. **Real selling features!**
3. **New products!**
4. **Money for your customer to buy with!**

No manufacturer more zealously guards the dealer's road to profit than Crane Co. does. It puts into your hands a selling line with acceleration and power. Every Crane fitting and fixture is something to talk about. Their quality and beauty have gained public acceptance. And from a simple faucet replacement it's only a short step to a complete modernization job from basement up—and Crane will even supply the money for your customer to pay you with. Write or wire for detailed information on the Crane profit plan.



QUICK-DRAINING LAVATORIES are demanded by every woman because they make for cleanliness and freedom from stoppage. This lever-action SECURO waste drains the basin in six seconds, leaving basin in sanitary condition at all times. Outlet stopper is removable, permitting access for cleaning.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILLINOIS • NEW YORK: 23 W. 44TH STREET

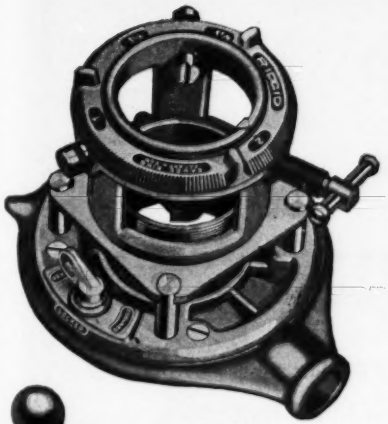
Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE PUMPS, HEATING AND PLUMBING MATERIAL

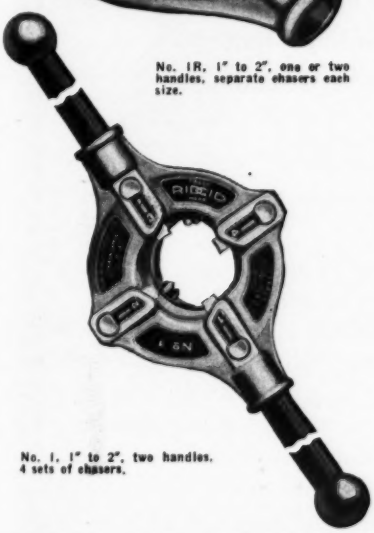
A Surprising Difference!

AND IT MAKES THE RIDGID POSTER THREADER SURPRISINGLY **BETTER**

The Ridge Tool Company believes there is no excuse for "just another tool." Only improved and better tools have a right to come on the market —or can succeed.



No. 1R, 1" to 2", one or two handles, separate chasers each size.



No. 1, 1" to 2", two handles, 4 sets of chasers.

THE acceptance by the trade of this comparatively new RIDGID Poster Threader —indicated by rapidly growing sales—is due to the fact that it is not only different but much better.

The design is ingenious and sound. Posts, for instance, are full-floating (as posts ought to be). They carry no load. They simply taper the threads. No danger of distorting them and spoiling the threads. They're not riveted, so are easily replaced in case of outside accident. Drive is directly over chasers—no wobbling, greater precision.

Perfected details all through—chaser locks enclosed, safe from damage; ratchet lever snaps into exact position, ratchet type also sets for solid die; workholder sets to size mechanically, tightens on pipe with one screw; alloy tool steel chasers are interchangeable, *fit any poster threader;* tool weighs only 12 lbs. but it's powerful.

Ask Your Jobber

THE RIDGE TOOL CO.
ELYRIA, OHIO, U.S.A.

RIDGID No. 65R Threader

Threads 1" to 2" pipe with ONE SET of chasers. Many other improvements. There are now 9 different RIDGID threaders, all with special advantages.

RIDGID Wrenches

This heavy-duty all-alloy RIDGID Wrench, housing unbreakable in service, chrome molybdenum jaws.

EASY TURNING ADJUSTMENT NUT in open housing; also end pattern. All sizes, 6" to 60".

RIDGID Pipe Cutters

Made with reinforced unbreakable housing and special thin tool steel cutter blade that gives far more quick, clean cuts. Four sizes, ⅛" to 2". Also new RIDGID Tubing Cutter.

RIDGID PIPE TOOLS

WHITEHEAD

METAL PRODUCTS COMPANY OF NEW YORK, INC.

is appointed

DISTRIBUTOR

EAST OF THE ROCKIES*

for the sale of

MONEL METAL SINKS

Plumbing trade welcomes news that "WHITEHEAD" Range Boilers and "Streamline" and "Straitline" standardized Monel Metal sinks are now obtainable from a single organization

THE maker of the famous "Whitehead*" Hot Water Tank (range boiler) has been appointed Distributor for the sale of Monel Metal Sinks and Cabinet Tops for the United States east of the Rocky Mountains.

In this territory, as a result, you will be able to handle *all* your Monel Metal transactions through one organization.

This arrangement is part of an aggressive drive for business right at the time that the full effects of the National Housing Act will be most completely in evidence.

*Reg. U. S. Pat. Off.

New Low Prices

Prices have been reduced on all sink models, some as much as 35%. Write for catalog and price list. Address Whitehead Metal Products Co. of New York, Inc., 304 Hudson Street, New York, N. Y.

THE INTERNATIONAL NICKEL COMPANY, INC.

67 WALL STREET, NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

NRA CODE

★WEST OF THE ROCKIES—

PACIFIC METALS COMPANY, LTD.
3100 Nineteenth St., San Francisco, Calif.

PACIFIC METALS COMPANY, LTD.
1400 South Alameda St., Los Angeles, Calif.

EAGLE METALS COMPANY
21 Spokane St., Seattle, Wash.

LET THIS FINE RETURN LINE PUMP SWING THE AXE ON YOUR HEATING COSTS

For the Jennings Vapor Turbine is truly a willing and tireless worker for better conditions in your heating system. Best of all, he demands little attention, and his ability to work is great compared with his consumption of power. All he needs is a little steam directly from the heating lines, and he returns that right back to the heating system, with little heat loss. As for electric current, the most expensive item in operating an ordinary heating pump, he requires none at all, although he is equipped to run on electricity in any emergency.

All of this is possible because the Vapor Turbine is driven by a special turbine which needs a differential of only 5" of mercury between inlet and exhaust to function perfectly. The system may be run above or below atmosphere, and can be of any type. It makes no difference to this remarkable pump.

Now the big advantage the Vapor Turbine has is that it can operate continuously with economy. Continuous operation means continuous removal of air and condensate. Every engineer knows that uniform circulation means steam saving. That is why the Vapor Turbine can operate on steam, and still save steam as compared with a motor driven heating pump.

We could tell you a lot more about the advantages offered by this pump, and of its superior construction, but why not send for bulletin 203, and get all of the facts?

THE NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

BETWEEN OURSELVES

Thanks:
"After the many years we have subscribed for Domestic Engineering, we are lost without it."
S. P. H.,
Pennsylvania.

Can You Stand a Shock?

How are your nerves today? Are you prepared for a terrific wallop right between the eyes? You had better be for you're going to be on the receiving end in just a moment. Here it comes.

What a Prize!

The Grand Prize in the new FHA campaign will be a ½-Ton, 6-Cylinder International Truck with a Panel Body. But that isn't all by any means. In addition, there will be cash prizes for all other contractor-dealer entrants who are successful in the contest.

An All-Industry Affair

This second campaign is being backed by all branches of the industry. The first campaign, it will be remembered, was sponsored and financed by Domestic Engineering alone. Its tremendous success, however, in interesting contractor-dealers in the big FHA remodeling movement and in stimulating them to prompt action, led many manufacturers and wholesalers to ask that they be allowed to contribute toward the prizes in the second contest. Naturally we are glad to have them join us in this program. Their cooperation, together with the incentive for action inspired by the valuable prizes being offered to dealers, insures success for the campaign.

Washington Gives O. K.

That the Administration recognizes the value of these prize contests is clearly indicated in a statement just received from James A. Moffett, administrator of the FHA. Mr. Moffett says:

"I have watched with interest the efforts of Domestic Engineering to encourage more rapid action by the plumbing and heating industry in backing this national drive. Certainly the fine record of that industry shows that prompt action does bring business.

"From such a record, I can understand your enthusiasm in announcing a new prize program, supported by manufacturers and wholesalers as well as by your own publication. I wish you and your industry a full measure of success in this new program. If at all possible, I will enjoy the opportunity of being present to witness the distribution of prizes to the successful entrants."

Start Now

There is no time to lose in getting started. All prizes, including the Grand Prize, will be awarded on practically the same basis as in the first contest. Every contractor-dealer can enter. All he must do is to write us about a sale he has made, a sale in which he was able to get the customer to use plumbing and heating products to remodel his home or building. If possible, send "before" and "after" pictures. The enterprise and ingenuity of the dealer will be the determining factors in deciding the prize winners Skill in writing is not important—the important thing is skill in making the sale and installation.

Curiosity Seekers or Prospects?

At a recent meeting one of the speakers became enthusiastic over a certain new fabricated house. Because 27,000 people visited this house daily, he concluded that all were prospective buyers. In commenting on this, W. H. Driscoll of New York, plumbing and heating contractor, remarked that just because 25,000 people in Chicago were flocking daily to see Mrs. Dionne, the famous mother, this did not mean that the world would be enriched with that many new sets of quintuplets.

Congratulations, Jimmy West

Jimmy West, a plumbing and heating dealer in Los Angeles, Calif., has discovered a method for actually meeting mail order competition. It's described in this issue. Advertising is his most important weapon. Almost equally important, however is the fact that because he renders service, and the mail order houses do not, Mr. West is able to get inside homes whose doors are barred to the mail order groups. A good showroom, which tip he takes from the mail order houses, and quality merchandise, are some of his other guns.

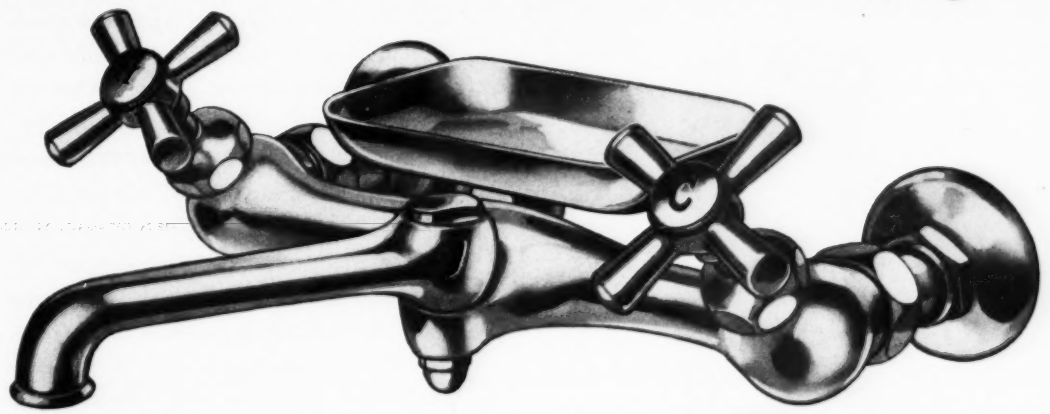
Next Month

Be sure and watch the April issue for further details on the Big All-Industry Prize Contest. And start right now making plans so that you will win one of the prizes. Every dealer has an equal chance.

Your Editor

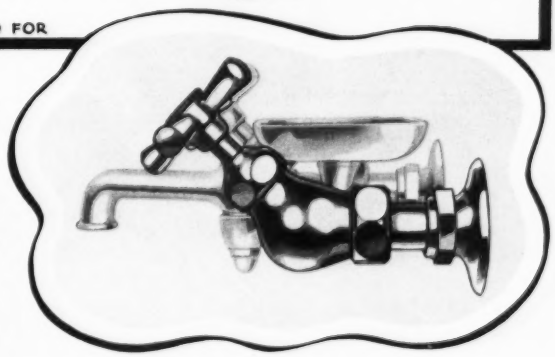
Smartcraft

IS THE NAME OF THIS LATEST OF HAYS DOUBLE SINK FAUCETS



PATENT APPLIED FOR

....AS NEW AS 7 MILES A MINUTE



HAYS Smartcraft is striking, sleek and rich looking. It's as new as 7 miles a minute through the air. It's classy. There's nothing like it on the market.

● Like all Hays Brass Goods--Smartcraft has inbuilt quality as well as external beauty. Lift one--it's all brass. Heavy walls - renewable seats and a free swinging spout.

● Take Smartcraft with you on your sales calls - it's a live calling card - gets attention. It's a business builder.

● Be the first to display it. Typical reactions over the country assure us of its popularity among the ladies. Write today for descriptive literature.

Note the Jaunty Angle

Hays Smartcraft puts speed lines in brass to produce a strikingly attractive heavily chromiun plated Double Sink Faucet. Note the jaunty handle angle. Smartcraft is going places in a hurry. Mr. Plumber clip the coupon today for information. The price is right—buy from your wholesaler.

HAYS MANUFACTURING CO. ERIE, PA.

HAYS Since 1869 *Quality* BRASS

COPPER PLUMBING - - - BATH FIXTURES

PLUMBING BRASS GOODS *from Street to Bath*

CLIP THE COUPON TODAY

HAYS MFG. CO., Erie, Pa.

Gentlemen:—

Send me full information on Smartcrafts.

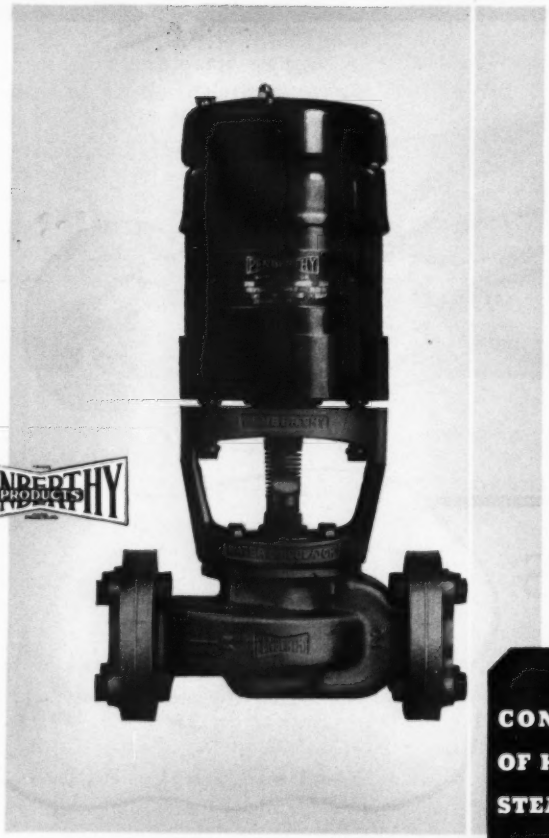
Name _____

Address _____

City _____ State _____

NRA MEMBER U.S. WE DO OUR PART

The best "medicine" for any *"ailing"* hot water heating system



PENBERTHY WATER CIRCULATOR

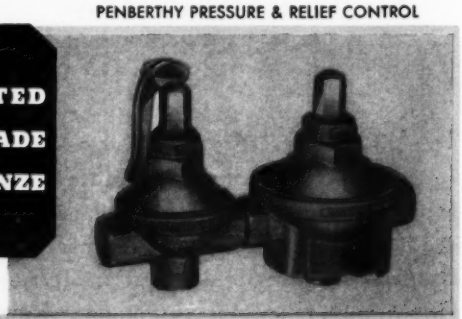
"SLUGGISH circulation" is the ailment from which most hot water heating systems are now suffering. Sluggish circulation that results in slow heating, excessive fuel cost, and general dissatisfaction on the part of the user.

The correct remedy is a Penberthy Water Circulator (and whatever other specialties shown here that are required by the particular system.) This has been proved in a large number of cases under a great variety of conditions.

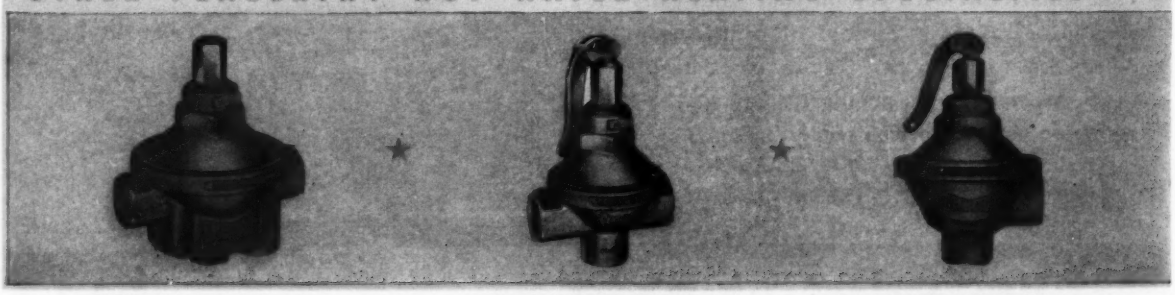
Penberthy Hot Water Heating Specialties are constructed of high grade steam bronze; their design and workmanship are of the same exceptional quality as the materials used. Your jobber will be glad to give you complete information regarding these specialties and to let you see for yourself how superior they are.

★ CONSTRUCTED OF HIGH GRADE STEAM BRONZE ★

PENBERTHY PRESSURE & RELIEF CONTROL



OTHER PENBERTHY HOT WATER HEATING SPECIALTIES ★ ★



PENBERTHY REDUCING VALVE

PENBERTHY RELIEF VALVE
IN-LINE TYPE

PENBERTHY RELIEF VALVE
DEAD-END TYPE

PENBERTHY INJECTOR COMPANY

Manufacturers of Quality Products Since 1886

DETROIT, MICHIGAN • WINDSOR, ONTARIO

OUR INDUSTRY

March, 1935

Three to One

If you stop to study some recent developments in our industry, it is surprising the number which make use of the proportion of one to three. As an illustration, that ratio applies in two different directions in connection with the great Better Housing program. About one out of every three dollars being spent for modernization because of this program, has been going for plumbing and heating products. Also, in many localities, for every three jobs originated by this program, only one goes on a deferred payment plan, the rest being paid for in cash.

In another direction, there is a growing conviction that 1935 will be the best of three years' progress for our industry, with 1933 showing some upturn, 1934 a definite return to a profit basis on the part of some companies and with the present year offering brighter prospects for a great many more.

As you study the announcement, starting on page 46, of the second big FHA campaign, you will find a real opportunity of making the odds even more in your favor.

First in and First Out

Manufacturers of plumbing fixtures were the first of the separate groups in our industry to secure a code. Following the failure of the industry to accept the offer made by leaders of the plumbing contracting group that the industry seek a blanket code for all branches, these manufacturers were the first to win Washington's endorsement of their code.

Now, these same manufacturers are the first to give up their effort to operate under fair trade practices which the federal government was supposed to enforce. This fact is distinctly discouraging to the many in this industry who had counted upon the NRA to restore sound competitive methods.

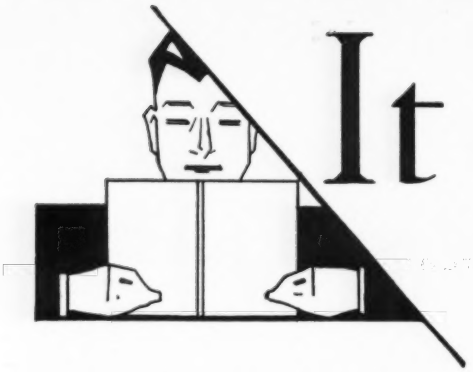
Make a brief study of the manufacturers' code as it was viewed by those responsible for it. Regulations on wages and hours were to guarantee fair living standards to workmen and remove the competitive handicap from the manufacturer who paid a fair wage but who found others paying workmen a lower scale. Code regulations on cost accounting, on a schedule of prices to different classifications of customers, on a fixed differential for carrying out the various functions of distribution, these and other provisions were meant to re-establish an equality of competition.

As a representative of these manufacturers said when the code was signed a year ago, no manufacturer hoped to secure any advantage over another. Those using the established methods of distribution had worked to secure a code under which other manufacturers would not have unfair advantages at the expense of the majority of the industry. With equality re-established, the race between two different systems of distribution would be fair to both sides and equally fair to the public.

Competition Made Worse

The complete failure to realize on any of these bright prospects of a year ago was signalized when these manufacturers, a few days ago, notified the NRA that they were surrendering all the provisions of their code except those governing wages and hours. The reason is self-evident to any of those who have followed code practices. Enforcement was essential, but the NRA was not prepared to act. Different code provisions began to be abused, the code authority found itself unable to compel enforcement, its requests for essential information were ignored and complaints filed were sidetracked and finally lost through lack of attention.

While one can sympathize with the magnitude of the job tackled by the NRA and can find reasons why it delayed enforcement of the plumbing fixtures code, along with many hundreds of others, as an almost impossible task, no one can ignore the fact that the majority of an industry, in many cases, have been penalized by their observance of the code. It goes without argument that a manufacturer who has lived up to code provisions covering not simply wages and hours but in an effort to secure the profit which President Roosevelt asked for in his statement that the 10 per cent "chiselers" must be driven out, has suffered because of his faithfulness to the NRA program.



It happened

Plumbing Fixture Manufacturers Give up N R A Code

Act to retain provisions for hours and wages

Plumbing fixture manufacturers have given up their effort to carry on business under NRA code control. On February 13, almost one year to a day after their code had become effective, these manufacturers notified NRA that they were giving up all of the features of the code except those which are to cover wages and hours.

The withdrawal of the fair trade practice provisions of the manufacturers' code leaves the contractors as the only major branch still carrying on under NRA regulations. The wholesalers, whose code was finally signed months after those of the other two branches, have never begun to operate under their code. It has been pointed out that the action to rescind the code constitutes an effort to place all of the manufacturers on an equitable basis. Also, efforts will be made to obtain voluntary compliance with the fair trade practice rules developed through the code. The NRA has yet to take final action on this.

Predicts Gain in Home Construction

Commenting on the first quarter outlook for residential building in the 37 eastern states, the F. W. Dodge Corporation bulletin says:

"For the first quarter of 1935 it is probable that residential building awards will exceed the total of $57,706,800 for the corresponding period of 1934, but it is not likely that the percentage gain for January can be maintained for the quarter as a whole."

Residential building contracts let in the 37 eastern states in January, 1935, were 53 per cent greater in aggregate volume than in December, 1934, and about 48 per cent greater than in January, 1934, according to the Dodge bulletin.

Total construction awards during January, the bulletin states, exceeded the total for December by about $7 million, or almost 8 per cent. This total of $99,773,900 for all classes of construction, however, was only 53 per cent as great as the total of $186,463,700 reported for January, 1934. In making comparisons with a year ago, however, it should be recalled that at that time contract letting under the PWA program reached its peak.

Repair Work Increased 24% in 1934

The total number of repair and improvement permits issued during the year 1934 in more than 750 cities having populations of more than 10,000 each was 24 per cent greater than the total granted for these purposes in the same cities in 1933, according to the Federal Housing Administration.

The amount of money involved in the 1934 volume of permits was 51 per cent increased over the value of the previous year's total, according to information made available by the Bureau of Labor Statistics, U. S. Department of Labor.

Inasmuch as there are only 982 cities having populations of 10,000 or more in the entire country these gains noted may be taken as indications of the increase throughout the nation last year, the report states.

The effect of the operation of the Federal Housing Administration's Modernization Credit Plan is indicated by a study of the individual monthly totals. After July, when the financial institutions commenced making credit available to owners for repair and modernization of their property the volume of permits issued showed large gains. As the Better Housing Programs got under way through the fall and early winter, totals became greater, despite the fact that it was during the so-called "unseasonal" time of the year.

Protest Uncle Sam Being a Contractor

Many protests were filed with congressmen by plumbing and heating contractors during February against provisions of the $4,880,000,000 work relief bill. The main complaint was found in the plan for the government to hire labor directly and to carry on contract work.

A representative of DOMESTIC ENGINEERING in discussing this with congressmen and government officers, found them defending the bill as a relief measure, pointing out that on regular federal work, the old plan of contracting still was being observed.

Representatives of the National Association of Master Plumbers were busy at Washington, making the views of their members better understood by both representatives and senators and in appearing before the committees in charge of the bill.

As one of the efforts in protest to extensive use of day labor in expenditures authorized under the proposed four-billion-dollar public works fund, the Master Plumbers Association of California sent the following telegram to Congressmen:

"Your efforts to amend the emergency relief bill now before Congress is urgently requested so that contractors such as plumbers, electricians, heating and piping contractors, plasterers, carpenters and all manner of

this month!

construction industry contractors may participate in the work.

"The CWA and SERA made no provision for contractors who are bearing a large part of the burden in the Construction Industry today and I earnestly believe that this new proposed fund should not all be earmarked for Days work.

"The Government can obtain the desired results by letting all its citizens and taxpayers participate in this fund and thus put no unnecessary burden on any one craft or industry, as has certainly been the result under CWA and SERA allocation of funds."

Display Low Price Houses at N. Y.

Standardized houses, the smallest selling at a delivered and erected price of $3,800 or $38 a month, are announced at a display recently opened in New York. The mechanical services, including plumbing and heating, are arranged for quick assembly. The backers of these houses assert that tests made and still being carried on, back up their claims for good housing at lower prices.

Dealers Near Lead in Retail Advertising

A further indication that plumbing and heating contractor-dealers have been alert to the possibilities in FHA comes in a report telling how plumbing and heating advertising by dealers compares with the total for the country in 1934. The report is as follows:

Local heating and plumbing advertising ran a close third in 1934 to drug store and hotel and restaurant advertising as the Better Housing Program got into stride, according to a report received by the Federal Housing Administration.

Information released by Media Records says: "We have just assembled the lineage figures for the entire country on the basis of our Olympi-ad Plan for advertising recovery. This plan established a quota for 1934 in every classification, setting the 1932 volume as the objective.

"While total retail advertising for the country attained 101.2 per cent of its quota, the local heating and plumbing classification reached 117.7 per cent. This was exceeded only by the advertising of drug stores which achieved 124.2 per cent and hotels and restaurants, 129.9 per cent.

Attack Mail Order Influence in NRA

The divisional code authority for the plumbing contractors continues to work with the NRA in an effort to secure better observance of the code by mail order houses and others. Executive Director Robert J. Barrett and his assistant, Ernst L. Flentje, have been active, both in appearing before meetings of contractors and before congressional committees and NRA officials.

Mail order firms, it is learned, in many cases have worked out a contractual relationship with some plumbing contractors which makes the mail order company the agent for the ultimate consumer. By this plan, they expect to keep clear of the code provisions governing installation.

The industry's representatives have appeared in protest against this plan. Questionnaires have gone to members of the industry to secure information on mail order contracting, in an effort to meet this problem.

In addition, protests have been filed against the appointment of leading mail order executives to responsible positions in the NRA. In particular, President Calnan of the National Association of Master Plumbers, has been interested in the naming of D. M. Nelson, a Sears-Roebuck official, to a high ranking office in NRA. The subject has been made the basis for discussion with the NRA and for protests from the field.

Gen. Robert E. Wood, president of Sears-Roebuck, was reported on one day as the prospective head of a new NRA. President Roosevelt denied the story promptly and a few days later announced that General Wood had become the administration's principal adviser in guiding the expenditure of the $4,880,000,000 which the President is seeking from Congress for work relief.

Secures Publicity for State Conventions

Radio broadcasts by prominent members of the industry are being made in connection with some of the state conventions. This is the result of the work of the Plumbing and Heating Industries Bureau in arranging for advance publicity on these conventions, in providing radio talks and in securing the advance interest of local newspapers in the approaching conventions. Secretary Radder of the Bureau has been successful this year in securing such publicity, both in newspapers and over the radio.

New Real Property Survey To Be Undertaken

Last spring, a real property inventory was made to determine the condition of property in 64 cities throughout the country. The FHA and the FERA at present are organizing another survey to be made in 50 cities. However, New York, Pittsburgh and the State of New Jersey already are working on surveys of their own.

In Chicago, a survey also is to be made with the idea of obtaining local information which will be of value not only to the FHA but to industry generally, to bankers, real estate interests, city, county and federal government bodies and public utilities. Much of this information, according to the announcement, will be directed toward opening and defining a market for the building industry.

Winning Sales Ideas from First FHA Contest

Dealer reports "We have been able to retain entire force"

IDEAS from plumbing and heating contractor-dealers came to us from all parts of the country during the first FHA contest which was closed on January 15. So much worthwhile information was developed that it will take several months for us to publish it for the benefit of the entire industry and even then, there will be space for only selected portions. The following is taken from the entry of Moersch and Degnan, plumbing and heating contractors of Escanaba, Michigan, one of the winners of the first FHA prize contest. Mr. Degnan writes to say:

"At the time of the announcement of the Federal Housing Act, we investigated and obtained all necessary data and began immediately to work on prospective customers whom we knew were eager to make necessary repairs and improvements but were unable to do so without long term financing.

"As an example, one property owner had deferred the installation of unit heaters in a ballroom for the past three years. When we approached him with estimates and outlined the FHA plan to him, he signed up immediately. The result was a $352.00 job.

"In another instance, one of our prospects who had deferred work on his residence for two years at least was so elated with the plan that he signed the note for $465.00 immediately and we had our money from the bank before the job was completed.

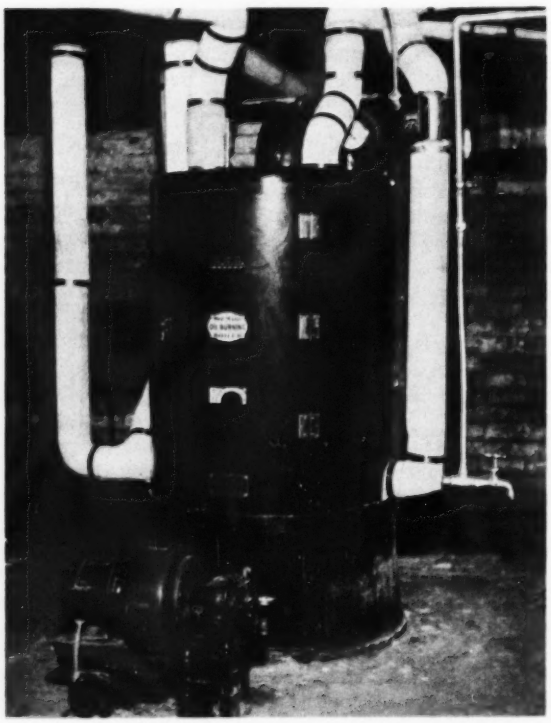


Fig. 1—The view at the left shows an oil burner and boiler installation which was made by a contractor dealer of Westbury, Long Island. This was a replacement job in a frame dwelling

FHA INCREASED BUSINESS

"In direct contrast to the usual slump in our line of work during the month of November, this year (thanks to the FHA) we added $3,714.15 to our sales and have been able to retain our entire force at work, which, of course, is one of the chief objectives of the FHA. Of this amount, one hot water heating installation, aggregating $1,300, was sold originally on the merits of the FHA, but the purchaser unexpectedly realized on an investment and decided to pay us in full when the job was completed.

"The work we have obtained under this plan has been diversified, covering five fields of our activities, namely: Plumbing, Hot Water Heating, Steam Heating, Stokers and Roofing.

"A good advertisement for the FHA developed in a case where we sold a stoker to a woman who had the cash to pay for the installation, namely, $245.00. After we had spoken to her of the FHA plan of $5.00 down and $7.67 monthly, she asked us to allow her to consider the matter. She surprised us by choosing the deferred payment plan, which we arranged without delay at our local bank.

"In addition to personal solicitation, we used FHA stickers on all outgoing mail, poster displays in our showroom windows and made house-to-house distribution of all pamphlets which were sent us by various manufacturers.

"It has, of course, been our custom since we have been in business to advertise weekly in our local newspaper. During the months of October, November and December last we concentrated on acquainting the public with the FHA. Several weeks ago I called on our bankers and, at my request, they inserted an advertisement the same day that ours appeared. In it they stated that they were cooperating with the government in this undertaking and were ready to make advances of credit to

---Now's the time to do it!
If you're one of the many home owners who have been holding off having their plumbing and heating equipment overhauled because they didn't have the money, this ad is for you!
The Government Guarantees Your Loan. We Guarantee the Modernity of Your Home.
Uncle Sam has made it possible for you to get a modernization loan without bothersome red tape or delay. We are working with him in the interests of better housing and will unconditionally guarantee the materials, workmanship and performance of any plumbing and heating work we do for you.
Let's get together and talk it over—NOW Write or phone. No obligation. And no "high pressure" stuff!
Does Your Home Need a New Roof? If So . . . Do It Now; And Take 3 Years to Pay. Free Estimates
See The New "One Minute" Clothes Washer With the Automatic Wringing Feature ON DISPLAY
A New HEATING SYSTEM For as Low as 4.00 WEEKLY
No Down Payment
We will install a modern American Radiator Heating System, guaranteed to give you satisfaction, and finance it through the Heating and Plumbing Finance Corp. at a low rate of interest. You may have up to 3 years to pay without mortgage, co-makers or other red tape. Take advantage of the prevailing low prices and easy terms. Phone or write at once.
Moersch &
Plumbing, Heatin
112 No. 10th St.
Nothing down...
and up to
3 Years to Pay
YOU CAN AFFORD GOOD HEATING ON SUCH TERMS!
For the sake of comfort and health, take advantage of these terms to equip your home with good heating facilities. There is no red tape. You don't have to pay even one cent down. We will finance the job through the Heating and Plumbing Finance Corp. at the low rate of interest authorized by the Federal Housing Administration. No mortgage, co-makers
CRANE
20x42 Rolled Rim Sink, Less Fittings $15.00
Now Only $19.50
& Degnan
, Roofing, Sheet Metal
Phone 1381
BABY SEATS
Blue Ivory $2.20 White Pink
You Don't Need Cash To Equip Your Home With
PLUMBING, HEATING, ROOFING, SHEET METAL, STOKERS, UNIT HEATERS, AIR CONDITIONING EQUIPMENT.
Plan Your Home Improvements With Our Help
INSTALL NOW—TAKE UP TO 3 YEARS TO PAY FOR IT
LOWEST INTEREST
NO MORTGAGE
NO CO-MAKERS
You'll call this the soundest investment you ever made. It means a lifetime of comfort and security on terms so convenient that your budget will hardly be disturbed. There is no red tape attached to this offer. The job will be financed through us by the Heating and Plumbing Finance Corporation at the low rates authorized by the Federal Housing Administration. Don't delay. Act upon it now, while prices are at their lowest. Phone, write or call for full information.
MOERSCH & DEGNAN
112 NORTH TENTH STREET PHONE 1381

Fig. 2—Here are some of the advertisements which help Moersch and Degnan of Escanaba, Mich., sell plumbing and heating in connection with FHA. The ideas advanced here can serve other contractor-dealers in working out their advertisements for the retail trade

those wishing financial assistance. They also advocated calling in contractors, plumbers, etc., and making repairs and improvements in an effort to create business and start the wheels of industry moving again. This, in our mind, will give people some confidence in spending and, incidentally, it is a great advantage to both our customers and ourselves to be able to make the financing locally, as loans can be arranged expediently and without a lot of red tape and correspondence.

"I am enclosing several of our advertisements which will speak for themselves. Also we used a sheet showing how we tied in the FHA plan with our Christmas gift suggestions advertisements which appeared in a Christmas special. This was circulated locally and in surrounding communities within a radius of sixty miles of our place of business. This paper carried our local bank's advertisement as well as our own.

(Continued on Page 164)

Six-Cylinder Truck Is to Be FHA Prize Contest

ALTHOUGH it is estimated that a total of $252,948,856.00 worth of modernization and repair work, up to February 16, has been directly traceable to FHA, it can be said that work along this line has just begun. Momentum is being gained daily and succeeding months should show a steadily increasing volume of business.

When the first FHA contest for our industry came to a close on the 15th of January, the fact that FHA had just got started was pointed out and different leaders in the industry expressed the need for additional stimulus to be given to plumbing and heating sales. Because the first FHA prize contest was so successful in encouraging and helping plumbing and heating contractors to go out and sell their products and services through FHA, it was suggested that the effort be repeated on a larger scale. Accordingly, we have for announcement the second FHA prize contest. This has been planned and developed and is being promoted as a contest for the entire plumbing and heating industry. Manufacturers and wholesalers as well as plumbing and heating contractors have been extended the opportunity of taking part in this activity. As a matter of fact, the contest is entirely for our industry so that all branches will receive their share of the increase in business resulting from the FHA movement as promoted by the government.

The first prize in this contest already has been selected. It is a six-cylinder one-half ton International motor truck. An illustration of this is shown on the facing page.

Cash prizes will be awarded in addition to this grand prize. The complete announcement of these cannot be made until our April issue because contributions from manufacturers and wholesalers are still coming in. We want every manufacturer and wholesaler to have an opportunity to take part in this campaign. Therefore, we are withholding the final details of the contest as long as possible. However, plumbing and heating contractor dealers, for whom this contest is being conducted, can start now to develop their FHA sales ideas and experiences, for their entries in this contest. The purpose of the entire project, of course, is to encourage and assist plumbing and heating contractors in the sale of their products and services which has been made possible largely through the creation of the Federal Housing Administration with the financing facilities it has opened up.

Start now to collect sales data for contest

Plumbing and heating contractors throughout the country can start now to keep a record of their sales ideas and experiences. It should be pointed out that in some instances it takes just as much, if not more, sales ability and initiative to sell a small job as it does to sell a big job. As a matter of fact, experiences indicate that the important and difficult part of any sales program is to make the initial sale. Very often it is a comparatively easy matter to build up a small sale so that the final amount of money involved becomes relatively large.

Those who enter this contest will find it helpful if they jot down in a note book the sales arguments they have used in making particularly interesting or difficult sales. Also, entrants might start now in taking before pictures of remodeling jobs so that a complete record of the work will be available for description in their entries.

Cash prizes are to be announced later. Watch April issue

First Award in the Second Sponsored by Our Industry

Success of first FHA prize contest leads to demand for an additional campaign to give sales stimulus

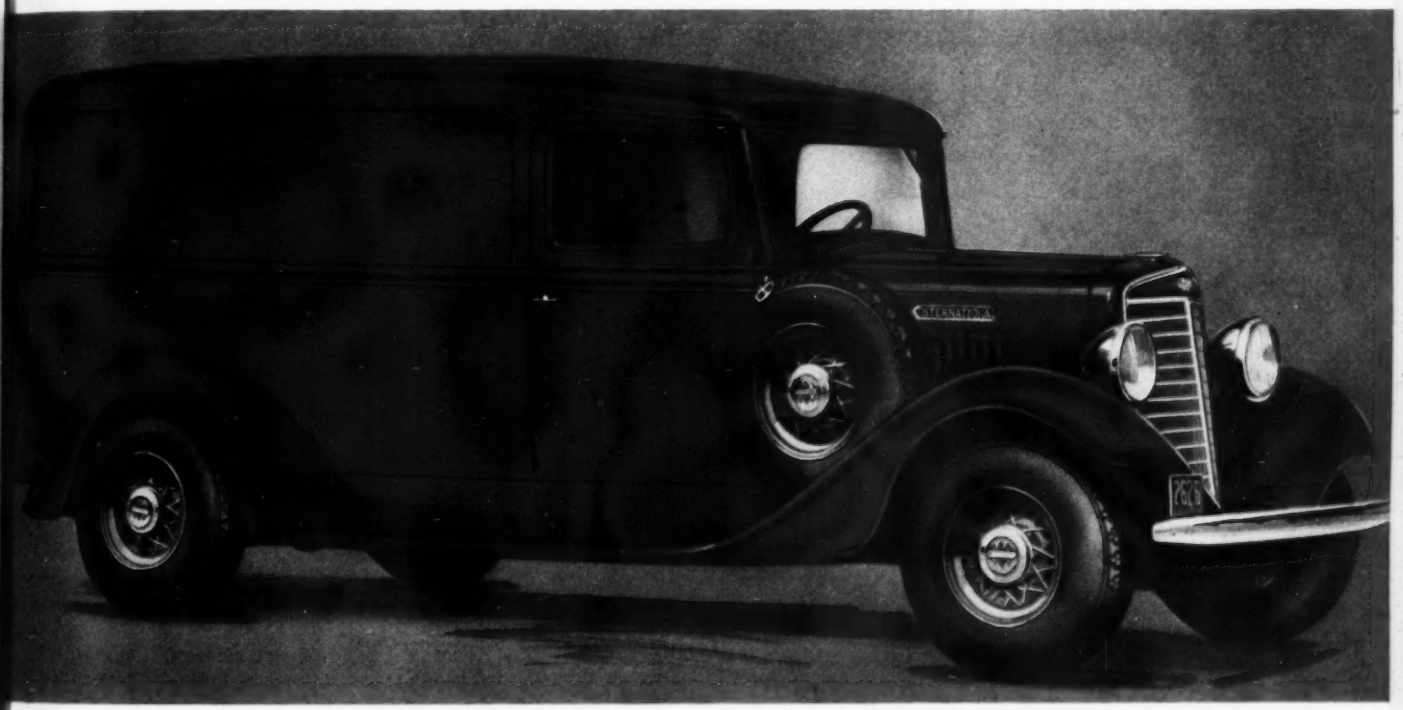


Fig. 1—This illustration shows the six-cylinder, one-half ton Inter national motor truck which is to be first prize in this new contest

Special and Standard Equipment Included with Truck

Here are the specifications for the truck which is to be given as first prize in the new FHA contest.

Make, International; type, (panel body) Model C-1; rated capacity, one-half ton; engine, high compression, 6 cylinders; wheelbase, 125 in.; body dimensions, (inside or loading space), length, 7 ft., (88½ in. at floor), width, 55 in. at belt line, height, 52 in. at center, rear door opening, 44⅜ in. wide, 43⅝ in. high; frame, pressed steel channel with four reinforced cross members; maximum brake h.p., 78.5 at 3,400 r.p.m.; transmission, 3 speeds forward, 1 reverse; standard equipment, cowl and dash, front and rear fenders, running boards, right front fender well tire carrier, spare wire wheel, license brackets, starter, battery, generator, electric head (tilt beam), combination tail and stop light, and dash lights, air cleaner, jack and tools, speedometer, ammeter, oil pressure gauge, heat indicator, gasoline gauge, and instrument light, and windshield wiper.

Special equipment which is included on this truck consists of front bumpers, rear bumperettes, spare tire, air wheels and spare tire lock.

When this truck is delivered to the prize winner it also will be equipped with a spare tire lock and shock absorbers. Wheels are of the pressed steel type and both front and rear tires are 7.00 by 15. The weight of the truck including the body and the maximum load is listed at 2100 pounds. The rated load capacity for this job is one-half ton.

Early Comments on Contest

Manufacturers and wholesalers show support of effort

AMPLE evidence of the support which is being given our industry's new and second FHA prize contest is found in the letters we have received from manufacturers and wholesalers since the announcement of the contest. Some of these letters are reproduced on these pages. Space limitations have prevented us from showing all of them here. However, later issues will feature additional comments. One manufacturer says that the first FHA prize contest certainly created a lot of interest and produced some splendid results. Indirectly, he attributes this to the fact that the trade is ready for, and responsive to, sound sales ideas.

This manufacturer points out further, that the second FHA contest should be doubly effective as it will have the benefit of the experiences which all those interested have gained and it will capitalize on the cumulative interest and effort. Commenting further, he says, "I have felt for some time that this is one of the real functions of the trade paper because it tends to unite the entire industry in an aggressive program that is bound to bring to us not only satisfactory but unexpected results."

Another manufacturer tells us that "aggressive support by the plumbing and heating industry—manufacturers, wholesalers, contractors—of the National Better Housing program has brought more business for all of us. For that reason, we are glad to learn that you have started a second FHA prize campaign, designed to enlist the full support of the industry in going after more modernization work."

From one of the wholesalers comes the following: "SPLENDID! TIMELY! SOUND! Use the above words any way you like and they still fall short of the impression we have of your program in connection with the FHA."

Another wholesaler writes to tell us that "We have come to the conclusion that the members of the plumbing and heating industry should endorse this program, not only by offering their moral support but by doing something in a more substantial way to bring about the success of the second FHA prize contest."

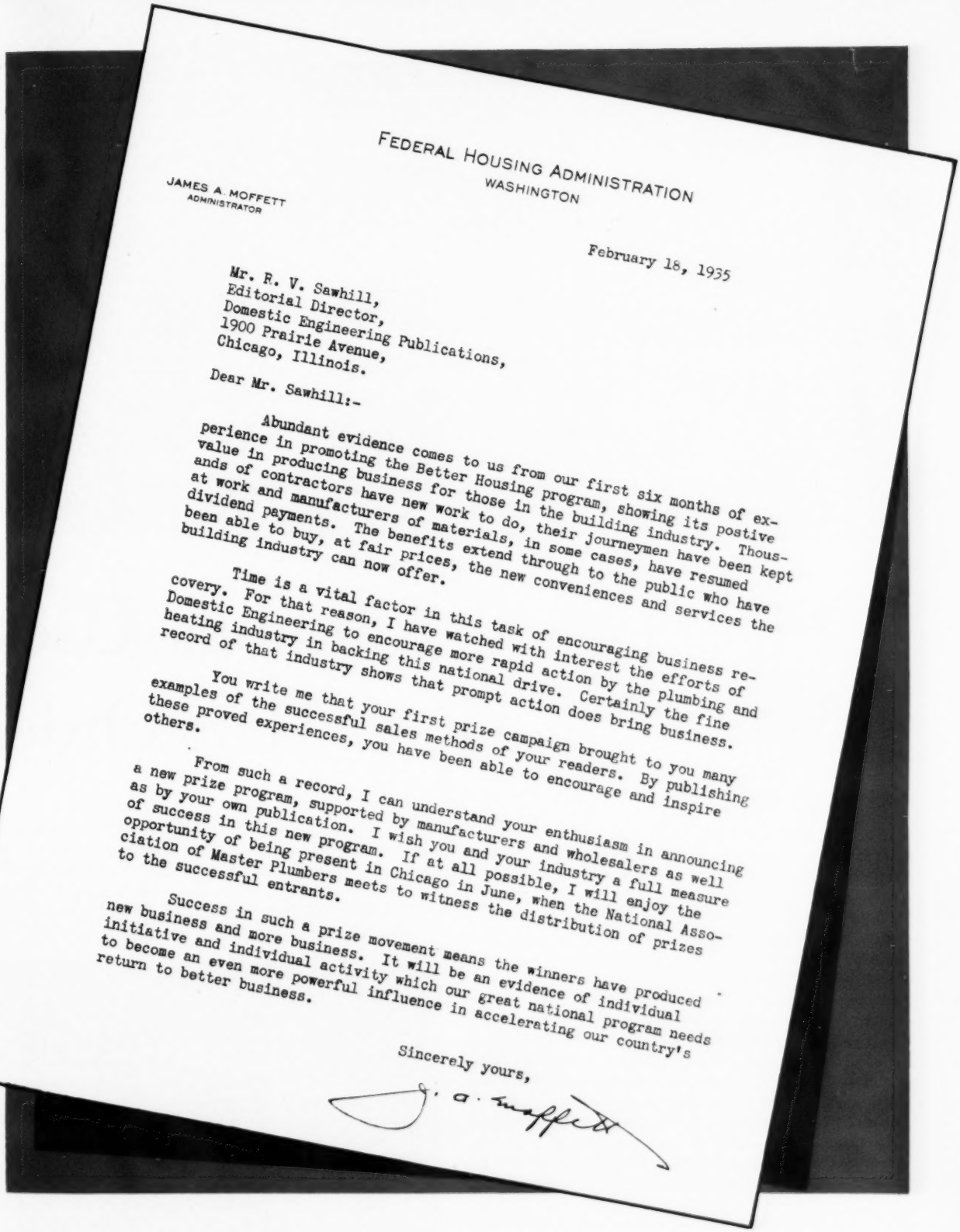
Practical sales plans, selling helps and further comments will be featured in later issues to help dealers to sell now through FHA

WINTERBOTTOM SUPPLY CO.
PLUMBING-HEATING
FACTORY AND MILL SUPPLIES
WATERLOO, IOWA
February 19th, 1935
Harris Pump & Supply Company
PUMPS AND HYDRAULIC MACHINERY
PIPE, VALVES AND FITTINGS
PLUMBING SUPPLIES
Pittsburgh, Pa.
February 19th 1935
Mr. O. T. Carson, President,
The Domestic Engineering Co.,
1900 Prairie Avenue,
Chicago, Illinois.
Dear Mr. Carson:
Congratulations to the Domestic Engineering for the spl endid stand they are taking on FHA and the heating exhibits paper is cert ainly instrumental which will materially assist in helping to bring back the Country to normalcy.
THE HEATON & CAPWELL MFG. CO.
PLUMBING AND STEAM SPECIALTIES
NEW BRITAIN
CONNECTICUT
U.S.A.
February 20, 1935
AMERICAN RADIATOR COMPANY
February 18, 1935
Mr. O. T. Carson, President
Domestic Engineering
1900 Prairie Avenue
Chicago, Ill.
Dear Mr. Carson:
Aggressive support by the Plumbing and Heating Industry - manufacturers, wholesalers and contractors - of the National Better Housing Program has brought more business for all of us.
For that reason we are glad to learn that you have started a second F. H. A. price campaign designed to enlist the full support of the industry in going after more modernization work.
As a definite indication of our conviction that such a campaign can be made to produce more business for our industry, I am enclosing our check as a share towards the prize fund which will be offered the successful dealers.
Very truly yours,
J. R. Kreuke
VICE PRESIDENT
GENERAL MANAGER SALES
PIERCE-PERRY CO.
HEATING AND PLUMBING SUPPLIES
STEEL, WROUGHT IRON AND BRASS PIPE
WATER WORKS MATERIALS
PLUMBERS & FACTORY SUPPLIES, INC.
DISTRIBUTORS OF
PLUMBING, HEATING, MILL AND
CONTRACTORS' SUPPLIES
COLUMBUS, OHIO
Greenpoint Supply Co., Inc.
WHOLESALERS IN
PLUMBING, HEATING & FACTORY SUPPLIES
351-53-55 LEONARD STREET
BROOKLYN, N. Y.
GORTON HEATING CORP.
Gorton Simplex Pipe Vapor System
Submerged Equalizing Valves
February 20, 1935.
Domestic Engineering,
1900 Prairie Avenue,
Chicago, Ill.
Attn: Mr. O. T. Carson, President.
Dear Sirs:
We are most heartily in favor of your FHA price campaign for the Plumbing and Heating Industry and want to contribute our little bit towards this good cause. We enclose our check
CHICAGO GRANITINE MFG. CO.
GRANITINE LAUNDRY TRAYS
GRANITINE
GRANITINE and CONCRETE PRODUCTS
6930 SOUTH ROCKWELL STREET, CHICAGO
February 20, 1935.
"Domestic Engineering",
1900 Prairie Avenue,
Chicago, Illinois.
Mr. O. T. Carson, Pres.
BUSSER SUPPLY CO.
WHOLESALE DISTRIBUTORS
PLUMBING, HEATING, SHEET METAL AND MILL SUPPLIES
LEWISBURG, PA.
February 20, 1935.
Domestic Engineering,
1900 Prairie Ave.
Chicago, Ill.
KINSEY & MAHLER CO.
Peoria, Illinois
February 19th, 1935
Engineering,
Prairie Ave.,
Ill.
ATTENTION MR. O. T. CARSON, PRESIDENT.
WESTERN UNION
Received at 427 So. LaSalle St. Chicago, Ill. Wabash 4321
88983 22 NL=SR BOSTON MASS 14
O I CARSON, PRES DOMESTIC ENGINEERING PUBLICATION
PRAIRIE AVE CHGO=
REMITTANCE
WHITNEY and FORD CO.
PLUMBING and HEATING SUPPLIES
4311-17 S. Western Blvd.
CHICAGO, ILLINOIS
THE MERKEL BROTHERS COMPANY
WHOLESALE DISTRIBUTORS
PLUMBERS STEAM AND REFRIGERATION
SUPPLIES
L J M CINCINNATI February 19, 1935.
Domestic Engineering Co.,
1900 Prairie Avenue,
Chicago, Illinois.
Gentlemen:
Acting yours February 16th detailing the SECOND FHA
THE CHICAGO FAUCET COMPANY
CHICAGO
Domestic Engineering,
1900 Prairie Ave.,
Chicago, Ill.
AMERICAN SEAT AND TANK COMPANY
MANUFACTURERS OF
"HYGRADE" PLUMBERS WOOD WORK
Abingdon, Illinois
GRAND HAVEN, MICHIGAN February 18, 1935.
Domestic Engineering,
1900 Prairie Ave.,
Chicago, Illinois.
Gentlemen:
Your coop
comes at a very opp
be a splendid one.
contribution towards
ROCKFORD PLUMBING SUPPLY CO.
WHOLESALERS OF
PLUMBING AND HEATING SUPPLIES
ROCKFORD, ILLINOIS
The Martin Metal Manufacturing Co.
Manufacturers of
Metal Tanks, Corrugated Metal Culverts, Metal Roofing
Stack Covers and other Sheet Metal Products
Pumps, Pipe, Pipe Fittings and Plumbers Supplies
WICHITA, KANSAS
BOWLES PUMPS
THE CONNECTICUT PLUMBING SUPPLY CO.
DISTRIBUTORS OF BOWLES WATER SYSTEMS AND PUMPS
FOR EVERY SERVICE
PLUMBING, HEATING AND MILL SUPPLIES
Main Office
STAMFORD, CONN.
McDONNELL & MILLER
"Doing One Thing Well"
CHICAGO
W. A. CASE & SON MFG. CO.
SUPPLIES FOR
PLUMBERS, STEAMFITTERS
MILLS AND FACTORIES
33 MAIN STREET
BUFFALO, N. Y.
February 21, 1935
Mr. O. T. Carson, President
Domestic Engineering Company
Chicago, Illinois
Kretchmer-Tredway Company
Plumbing Heating Hardware
Oshkosh, Iowa
February 19, 1935
Domestic Engineering Co.
1900 Prairie Avenue,
Chicago, Ill.
Gentlemen: Attention: O. T. Carson, Pres.
We have yours dated February 18th re: Second FHA Price Contest.
After reading same, we have come to the conclusion that the members of the Plumbing and Heating Industry should endorse your Program not only by offering their moral support but going something in a more substantial way to bring about the success of your Second FHA Price Contest.
That with $200,000,00.00 spent for modernization since last fall and with more modernization and new homes anticipated for this year, last years results will be more than doubled.
adding to the Cash Prize Fund, as are enclosing herewith
THE UNIVERSAL SUPPLY CO.
JOBBERS OF
PLUMBERS, MILL AND BUILDERS SUPPLIES
NEWARK, OHIO.
February 19, 1935
Domestic Engineering Co.
1900 Prairie Ave.
Chicago, Ill.
Gentlemen:
We have read with interest your letter of February 18th outlining your second F.H.A. price contest.
We are heartily in accord with this worthy
TRUMBULL PLUMBING SUPPLY CO.
JOBBERS OF
PLUMBING AND HEATING SUPPLIES
193 DAWSON ST. S. W.
WARREN, OHIO
February 19, 1935
Domestic Engineering Co.
Chicago, Ill.

Moffett Sees Contest as Aid to Business

James A. Moffett

NOT only has our industry recognized the business building possibilities in its second FHA prize contest but the Federal Housing Administration in Washington is giving it recognition and support as a very definite and vital part of the entire FHA movement. In commenting on both the first and second contests, James A. Moffett, administrator of FHA points out that the FHA has had a positive value in producing business for those in the building industry. Also, he points out that success in our industry's contest means the winners have produced new business and more business which will be evidence of individual initiative and individual activity. Mr. Moffett further states that this is what the great national FHA program needs to become an even more



FEDERAL HOUSING ADMINISTRATION
WASHINGTON

JAMES A. MOFFETT
ADMINISTRATOR

February 18, 1935

Mr. R. V. Sawhill,
Editorial Director,
Domestic Engineering Publications,
1900 Prairie Avenue,
Chicago, Illinois.

Dear Mr. Sawhill:-

Abundant evidence comes to us from our first six months of experience in promoting the Better Housing program, showing its postive value in producing business for those in the building industry. Thousands of contractors have new work to do, their journeymen have been kept at work and manufacturers of materials, in some cases, have resumed dividend payments. The benefits extend through to the public who have been able to buy, at fair prices, the new conveniences and services the building industry can now offer.

Time is a vital factor in this task of encouraging business recovery. For that reason, I have watched with interest the efforts of Domestic Engineering to encourage more rapid action by the plumbing and heating industry in backing this national drive. Certainly the fine record of that industry shows that prompt action does bring business.

You write me that your first prize campaign brought to you many examples of the successful sales methods of your readers. By publishing these proved experiences, you have been able to encourage and inspire others.

From such a record, I can understand your enthusiasm in announcing a new prize program, supported by manufacturers and wholesalers as well as by your own publication. I wish you and your industry a full measure of success in this new program. If at all possible, I will enjoy the opportunity of being present in Chicago in June, when the National Association of Master Plumbers meets to witness the distribution of prizes to the successful entrants.

Success in such a prize movement means the winners have produced new business and more business. It will be an evidence of individual initiative and individual activity which our great national program needs to become an even more powerful influence in accelerating our country's return to better business.

Sincerely yours,

J. A. Moffett

powerful influence in accelerating our country's return to better business.

One way in which the FHA is helping to promote this contest which is being sponsored by our industry is to send news releases from its Washington office to newspapers throughout the entire country. This, of course, reflects credit upon all who are connected with the plumbing and heating industry by calling the attention of the general public to these outstanding efforts to help bring back normal prosperity.

Five Tested Methods Used to Meet Mail Order

TO deny that mail order, chain store or other cut-rate competition retards sales among independent dealers and makes selling more difficult, would be as unwise as it would be to surrender to this condition because of a belief that this competition cannot be met.

That competition is being met by an ever increasing number of plumbing and heating contractor-dealers throughout the country, and with a very satisfactory measure of profit. Almost within a stone's throw of a branch of one of the leading and largest chain stores which carries a complete line of plumbing and heating fixtures, in Los Angeles, California, is a plumber who is meeting this competition successfully, and is having a splendid time doing it. His name is Jimmie West, and he tells in this interview how he not only meets this competition but increases the unit sale in a large percentage of cases, and sells his customers better grades of equipment and merchandise.

"First, we've simply got to give these organizations credit for being successful merchandisers, whether we like it or not, that they are selling a lot of merchandise," Mr. West avers. "They carry large stocks, and display it well in large spaces where people can SEE it, thereby helping to create the desire to own and to use newer and modern equipment, such as gas ranges, heating stoves, electric washers, electric refrigerators, automatic water heaters, water supply systems, modern sinks, dish washers, lavatories, the latest in toilet seats and modern bath fixtures, on which they realize a good margin of profit.

"Because these organizations ARE successful, it is well to follow SOME of their plans, for example, carrying a wide range of samples of the equipment mentioned in the foregoing, in various sizes and price ranges, and displaying them

Fig. 1—At the top of this page is a view of Jimmie West's building

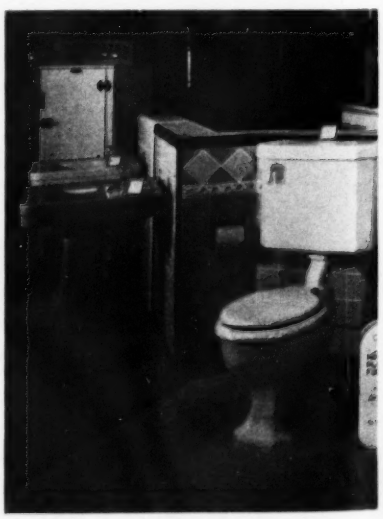


Fig. 2—This dealer follows his own advice in arranging his floor displays of fixtures in an attractive manner for all of his customers

well on the floors. From an advertising standpoint alone, this has a distinct value that helps make more sales. And without any effort whatsoever, this plan HELPS to sell the better class of merchandise. When combined with further plans which I will describe, it results in turning about 65 per cent of all orders into the higher price ranges.

"For 50 years, catalog houses have built and increased sales by advertising. No matter how low their prices might be, without advertising they never could have achieved national success. But how is the smaller dealer going to compete with them in advertising programs? He cannot, as a matter of course, advertise as extensively as they do, but he *can* advertise. At regular intervals, I distribute 50,000 circulars in a 7 mile radius, in which I list and quote prices that MEET mail order, chain store and other cut-rate store merchandise. This is necessary, in order to neutralize and combat the erroneous belief which now seems to exist in the public mind that chain stores can undersell.

in Program Competition

"The chain stores stock all this merchandise in different price ranges also. Through the power of demonstration and display, plus whatever salesmanship employees can bring to bear in these stores, they lead up to the higher priced and better quality of equipment. As a result they, too, often sell goods that are much higher in price than their advertised quotations would indicate. It is erroneous to believe that chain stores materially undersell the independent dealer in any event, and quality for quality, the independent dealer can and most always does offer better merchandise dollar for dollar, and when SERVICE is considered, the consumer gains when he or she buys from the local dealer. In fact, it has often been said here in my community, that take a ten dollar bill to spend promiscuously in a chain store for various items, then go to an independent dealer's store, buy the same items without regard to close shopping, and the consumer will have saved nothing buying in the chain, yet may have obtained lower quality.

"The point is, to sell and convince the public of this fact. Because Chains do carry a wider range of merchandise, often covering practically every household and personal need, naturally more people go to their stores than would or could visit a small specialty house such as an independent plumber. Here, then, is where the dealer has an opportunity. When you cannot get people to come to your store—take your store to the people.

"By this I mean that the circulars or other advertising which you distribute will interest a lot of people who WANT some repair work done, or who will want to BUY something you have advertised. They will not always come to your store, but they will call on the telephone and ask for estimates on specific equipment—a new kitchen sink, a modern bath outfit, or an electric refrigerator. Here is where you take your store to the people. Let us suppose they have asked about a new bath tub, lavatory and toilet outfit.

"In this case, I use a loose leaf binder made of heavy cardboard in which I insert one sheet of specifications of

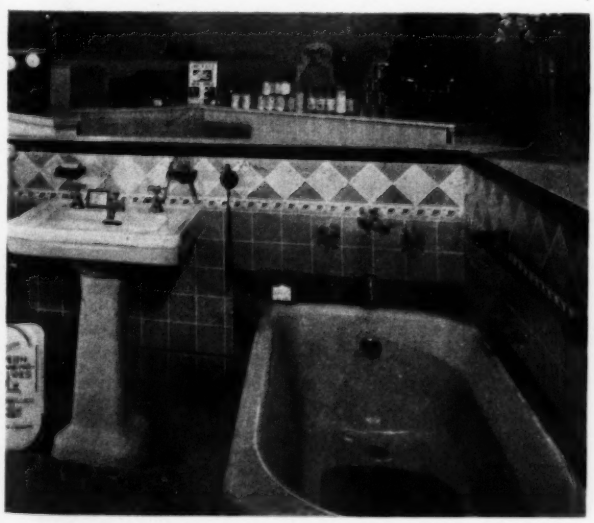


Fig. 3—At the top is a close-up view of one of his window displays which advertises FHA as well as a group of space heaters

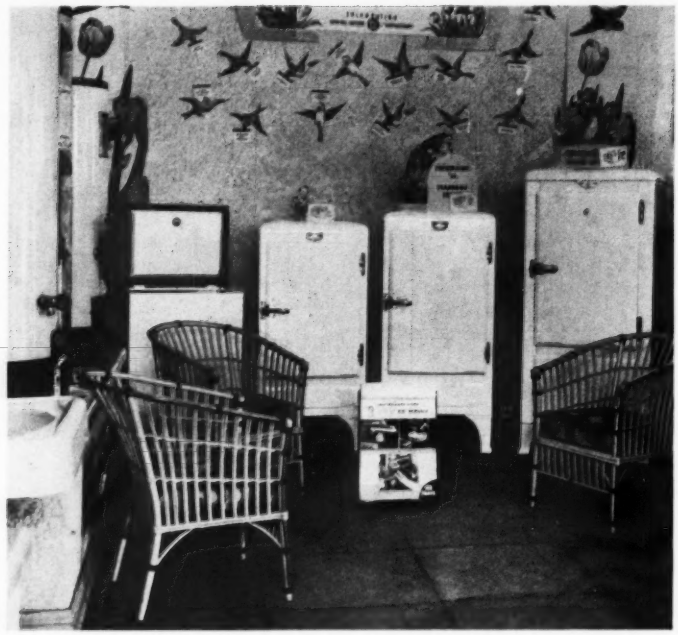


Fig. 4—One corner of Mr. West's large showroom space is given over to the display of electric refrigerators. Note the comfortable and good looking chairs which are provided for his customers

plumbing fixtures, with the name and address of the prospect filled in with a typewriter, and the name of the salesman who is to call. On another sheet is a typewritten description of the items in which the prospect is interested. Next is a color chart showing the various colors in which the equipment can be furnished. Next is a picture of the tub, with a cut-out reproduction showing interior construction. Then follows two more, one showing a large lavatory bowl, and a toilet, each having dimensions and specifications typewritten below the picture.

"In this way, the buyer is not confused with a large number of items such as a general catalog would present. His mind is concentrated on the one item before him, yet the color chart provides the range of selection to suit his individual taste. Then the important question of price arises. Although I *know* what the price is, I turn to the quotation sheet in the price catalog and show it to him. This inspires confidence. Now let us suppose that he has been quoted a lower price, or compares this price with the chain store's price tag. You have placed before your prospect a picture of QUALITY merchandise manufactured by a known house of national reputation for quality. When you ask if the price he has in mind is for this quality, for this particular outfit, he can only reply that it is not, or that he doesn't know. When you have this kind of illustrated quotation sheet to show your prospect, he KNOWS that he is going to get the very best obtainable. Even though OTHER quotations may have been for equal or even a higher priced item written carelessly on a blank sheet of paper, YOU have a sales advantage, plus the advantage of being on the ground to close the sale while the prospect is in the mood to buy.

"Just a short time ago the wife of a well known attorney called us on the telephone to have some repairs made in the bath. The work amounted to about $20. In their good, but rather old home, was a complete outmoded and obsolete set of bath equipment and fixtures. By leading up gradually to the advantages and personal

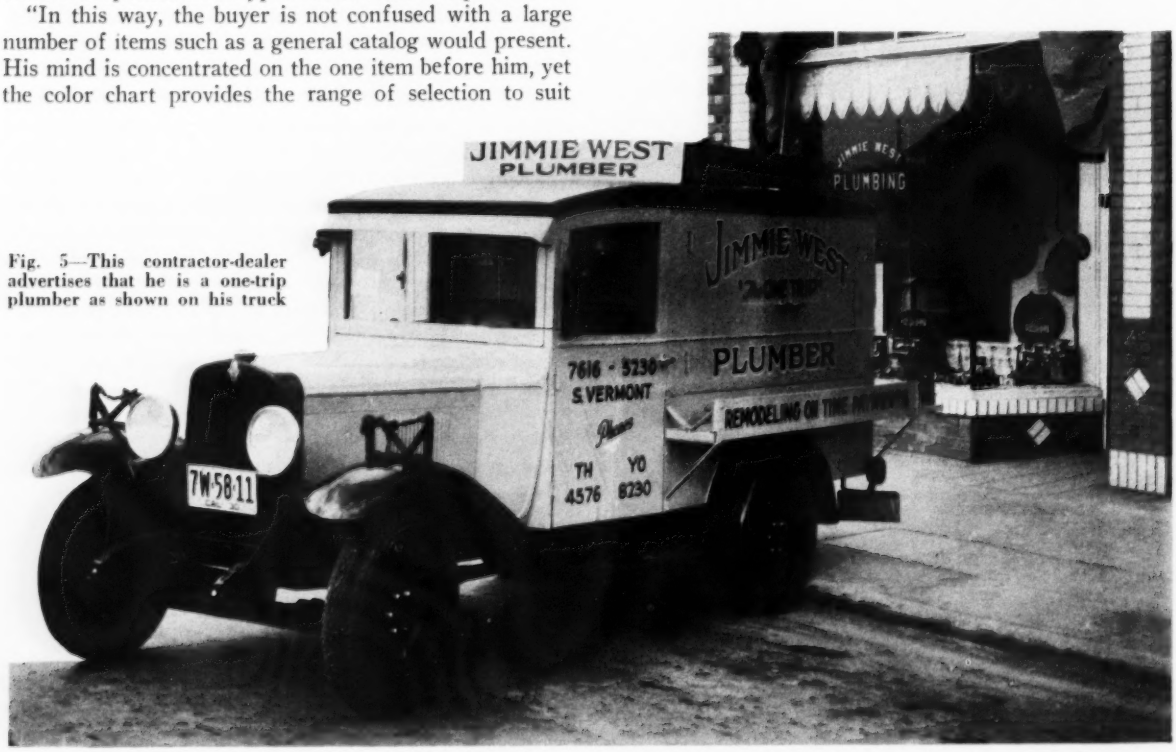


Fig. 5—This contractor-dealer advertises that he is a one-trip plumber as shown on his truck

satisfaction which modern fixtures would provide, we sold her new equipment, and thus a $20 prospective repair job led up to a $150 sale—a purchase which they could afford, and we made another satisfied customer whose influence will lead to further sales.

"There are a surprisingly large number of old fashioned bath fixtures still in use. The owners are tired of them and frequently we are called upon to simply modernize them, by concealing the legs, and to enclose the sides and ends with facing tile. By employing a little salesmanship, through the suggestion that 'you don't want that kind of a job—that it will still be more or less obsolete, lacking the style, color and beauty of the modern fixtures,' we often induce them to buy new equipment. We make a profit, and the customer is better satisfied in the end.

"To sum up briefly—chain store success is but the application of a simple, proven plan—big displays around accessible aisles, liberal stocks in varying price ranges, to make it *easy* for the public to buy, combined with persistent, never ending advertising schedules.

FHA IS USED IN SELLING PROGRAM

"These features, any independent dealer can employ. What he lacks in available advertising appropriations, he can more than overcome in applying personalized salesmanship—combining first class service—salesmanship that is superior to that of the average chain store employee who usually lacks the practical knowledge and experience of the master plumber. Combine that program with an extra commission of, say 5 per cent to your field men, and you can effectively meet cut-rate competition."

It will be noticed in Fig. 3 that Mr. West is taking advantage of the possibilities in FHA. As for his reasons for cooperating with this movement and the results he has produced, the following will cover some of this.

He says, "Never in the annals of business history, in my opinion, has opportunity knocked so loudly and at so many doors. Time, usage and the elements have worn out, rusted out or obsoleted fixtures and equipment in millions of homes across the length and breadth of the land, creating a vast market for new equipment, repairs and replacements.

"With this mighty catch-up program before us, we stand on the very threshold of business expansion in the building and remodeling industry in its every phase.

"Both the need and desire exist. The only obstacle in the path heretofore, has been the lack of confidence to unleash the billions of idle money and turn it loose in the channels of trade. Now the Government, through the FHA, the banks and private financing, not only is making hundreds of millions available to home owners, but is giving the program a great volume of publicity.

"Recently a prospect came in with an application for a $443.00 loan. A recent survey showed that the plumber is getting an average of 7 per cent of this new FHA money. On that basis, my share would have been about $31.00. This family was first impressed with the large stock of well displayed equipment. We sat down in the easy chairs in front of a group of electric refrigerators which we keep connected up for demonstrating purposes, see Fig. 4. We turned over the leaves of the sales chart, pointing out each feature and comparing it

JIMMIE WEST
7526 South Vermont
THE ONE TRIP PLUMBER
WHEN YOU GET A GOOD PLUMBER - REMEMBER HIS NUMBER
Phone PL. 3148
WE WILL ARRANGE FOR YOUR LOAN
National Housing Act Sponsored by United States Government Enables Property Owners to Finance Repairs and Improvements at Low Cost.
EXAMPLE:
12 Months Contract
24 Months Contract
No Lien on Property
No Mortgage.
No Endorsers.
No Money Down.
Up to 5 Years to Pay.
Work Can Start Immediately
Payments Can Be Made at Our Store.
Special Prices
These Low Prices for a LIMITED TIME ONLY
We Will Install:
New Plumbing Fixtures and Tile.
New Tile Drain Boards and Sink.
New Automatic Water Heater
New Gas Range for Kitchen.
New Gas Radiators for Gas Heater.
New Frigidaire.
All on One Contract
$15.90
$38.40
$14.80
$5.30
NEW Automatic Water Heaters $22.50
Champion Automatic Water Heater $30.50
90 Days Same as Cash
$2.95
$1.95
$3.25
Sinks
$4.65
$5.50
$19.75
A VALUE This Circulating Gas Heater Priced at $5.50 to $22.00
SEE THEM ON DISPLAY
This Bath Room Heater $2.95 to $4.10
WE SPECIALIZE IN REPAIR WORK
AND HAVE FULLY EQUIPPED TRUCKS FOR ALL TYPE
PLUMBING AND WATER HEATER REPAIR SERVICE
Distributors of the Genuine FRIGIDAIRE - Product of General Motors
Priced From $87.50 to $541
We Have Special Sectional Sewer Rods For Cleaning Main Sewer Stoppage

Fig. 6—Here is a type of circular which he sends out at regular intervals to 50,000 customers and prospects within a seven-mile radius of the building from which he operates

with the machine before us, and in this environment, they could visualize it in their own home. Result, an order for a $258.00 outfit. Then by similar demonstrations, we sold them an acid resisting sink, $31.50, pedestal base and toilet and plumbing $66.00, or a total of $355.50, leaving a balance of $87.50 which they proposed to use for a house painting job.

"Water heaters form a large volume of our business. Now how are you going to get almost $70 for a heater when so many outlets advertise them for $22.50? It is almost impossible to sell quality heaters in that kind of competition *without* a convincing demonstration. Here again, we place the buyer in the easy chair in front of a row of heaters priced from $22.50 up to $69.50. Two of our best grade heaters with sections cut out, show the thick insulations as well as the inner construction. This presents a convincing argument that requires no verbal explanation.

"Another similar heater is all connected up, water piping hot. At the right is a large square type colored lavatory connected up to the water and gas lines. A

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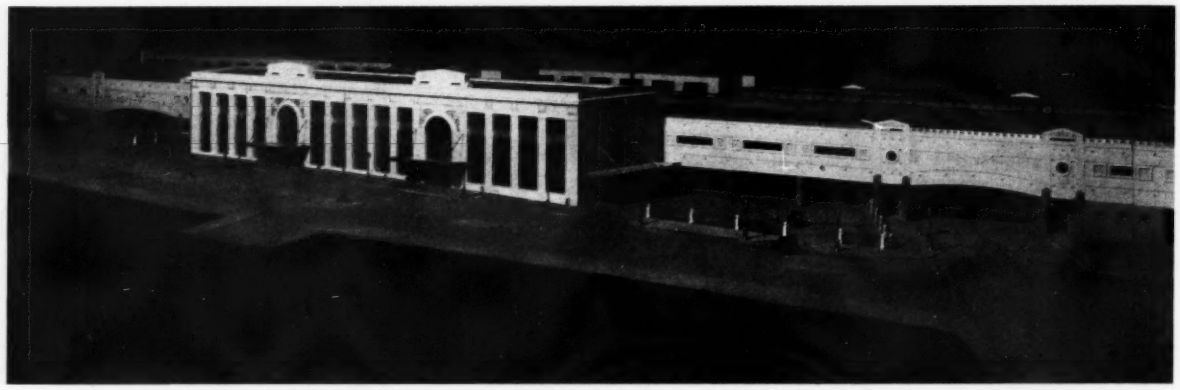

Fig. 1—View of completed station made from architect's model showing bus station at right, station building in middle, taxi drive on left and Market street passing under the platforms at extreme right

The Mechanical Equipment of the Newark Passenger Station

By Harold L. Alt*

For several years work has been in progress in the city of Newark, N. J., on a series of projects all of which center around or have connection with the new passenger station being erected by the Pennsylvania Railroad on Market St., directly across the street from the present station. These consist of the building of a new state road which parallels the railroad's right of way for quite a distance; the rearrangement of city streets around the station so as to accommodate the state road and to provide a plaza approximately 125 ft. wide in front of the station; the turning of an old canal which formerly ran through the heart of the city into a trolley subway having a terminal on the east side of the station with connecting entrances; the providing of a bus terminal on the street level just over the trolley terminal; the providing of a taxi space at the street level immediately west of the station and the bringing of the Hudson Tube Rapid Transit trains into the station along with the regular railroad service.

In Fig. 1 is shown a model of the station in its completed form, with all of the tracks elevated above the street, and with the arrival track for the rapid transit trains on a level above the general tracks from which passengers will be removed by escalators. The entire tracks and platforms within the area in which trains stop are covered with canopies and the platforms are on a level with the car platforms. Under the elevated track structure the space has been utilized for two main concourses giving access to the stairways and escalators leading up to the platforms and two cross concourses around which are grouped shops, ticket offices, baggage room, retiring rooms and toilet accommodations. The main waiting room which is the high structure shown in Fig. 1 is a room approximately two stories and a half high, and to the east of the waiting room across the rapid transit concourse is the lunch room, also of good height, back of which is located the kitchen. Additional kitchen facilities are provided in the basement under the main waiting rooom.

The entire station is heated with steam produced in a boiler house located about a block distance and carried from the boiler house to the station building under the platforms at 100 lb. pressure and reduced to the pressures desired in a meter room located beneath the main waiting room. In the meter room one main reducing valve reduces all of the steam to 50 lb. pressure which is used to supply the kitchen, the fan room and the hot water heaters and platform service. A secondary reducing valve reduces the 50 lb. pressure to 2 lb. for use in the vacuum steam heating system.

STATION HEATED FROM CENTRAL PLANT

To provide the maximum dependability of service from the boiler house, double feed lines of 6 in. size are installed either of which has sufficient capacity to heat the entire station (with the exception of the train shed) in all moderate winter weather and in zero weather will supply the heating system in full if only about 75 per cent of the ventilation is used. This is entirely adequate for winter use as the air quantity is based on summer requirements with cooling. For summer use a third

*Building Equipment Engineer for Gibbs and Hill, Consulting Engineers, New York City.

The presentation to our readers of this complete description and digest of the mechanical equipment installed in the new passenger station now being completed in Newark, New Jersey, has been made possible through the courtesy of the Pennsylvania Railroad.

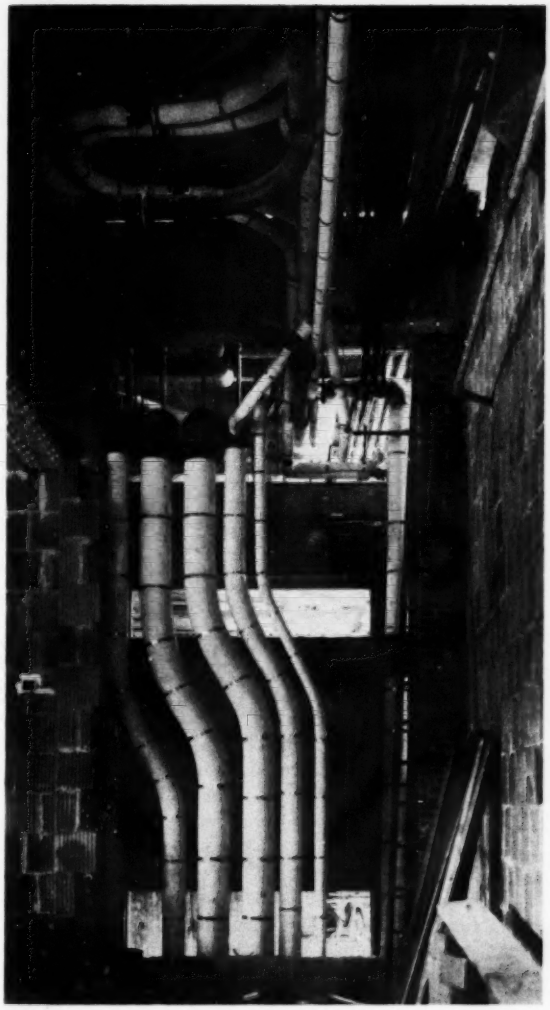

Fig. 2—View under platform showing the high pressure steam lines dropping down to the basement and the expansion loops in the steam lines. These are located under the platform

This article stands as an example of what is being done in large installations today. The outstanding feature in the heating work was the carrying of the steam under the platforms for a distance of two blocks from the boiler room to the passenger station

feed line is installed. This is 4 in. in size. Calculations showed that the line loss economy would be sufficient to justify the installation of this line which also serves as a third possible means of supply in case of emergency.

Owing to the necessity of carrying these lines under the station platform, where passengers are boarding and alighting from trains, every effort was made to insure them against any possibility of breaks, leakage or other trouble. While the steam pressure is only 100 lb., and the steam is saturated, these lines are made up with 400 lb. seamless steel pipe with Van Stone flanges and cast steel fittings also designed for 400 lb., working pressure. Due to the length of run, frequent expansion bends were necessary owing both to the expansion of the lines themselves and to the expansion joints provided in the platforms where a movement of a maximum of 2½ in. is possible. All drip traps are 250 lb., and the lines are anchored midway between the expansion bends and at the expansion bends.

The vacuum pumps in the station building are all 40 lb. pumps, that is, they will discharge against 40 lb. back pressure as this is sufficient to deliver the water of condensation through the 4 in. main return line called the "pump discharge" back to the feed water heater in the boiler house. This 4 in. line is entirely of brass with brass fittings.

ALL RADIATION IS CONCEALED

In the station, all radiation is concealed except in a very few cases and cast iron was used where space conditions permitted. When the space available for radiators was insufficient to permit the use of cast iron, copper convectors (either concealed or in cabinets) were substituted. In the main waiting room radiators are placed under the high windows with heat of sufficient amount to care for the wall and glass loss. Additional radiators are placed between alternate seats in the middle of the room to care for the ceiling loss, the arrangement of these radiators being shown in Figs. 5 and 6.

In the concourses it was necessary to install radiators for the concourse heating under the shop windows where the height was restricted. Owing to the limitations in many cases it was necessary to use the bottom tapping on the convectors, and the steam connection between the automatic control valve and the radiator is drained through a special trap to avoid the possibility of water collecting on the top of the valve and causing water hammer when the valve opens.

In controlling the temperature of this building, it was decided to use individual thermostatic radiator valves, bulb operated, where the radiators are concealed. With this arrangement, each room has its own control to suit the particular conditions prevailing in that room and in no way is it affected by the conditions in any other room. If a certain set of doors opening onto the cold platforms are opened more or less continuously when passengers are arriving or departing on a particular platform, a great deal of cold air is likely to enter at that particular spot and at no other. Individual radiator control valves will immediately act to turn on all radiators in the vicinity of this cold spot and as far as the drop in temperature penetrates, thus bringing back normal temperatures in the least possible time.

All radiators and convectors are enclosed in sheet metal housings of galvanized iron backed up with asbes-

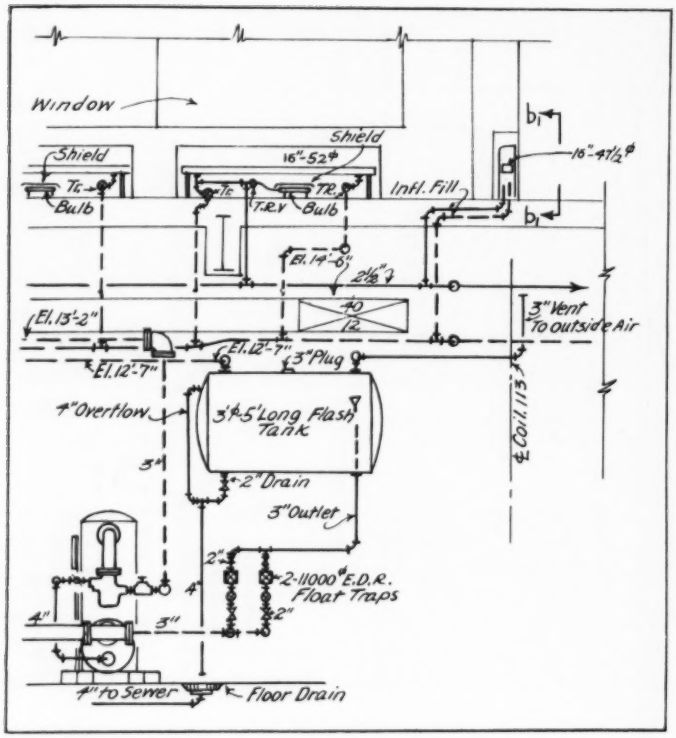

Fig. 3—This drawing illustrates the methods used in making the piping and connections around the flash tank

tos and flanged over to receive the attachment for holding on the grille.

While the major portion of the building heating is entirely on the upfeed system, there are certain portions such as in the Telephone Operators' Room and Fan Room Sections, where a downfeed method of piping was used to avoid large piping below; this also applies to the dining room where air loops had to be used in order to get the returns across the subway roof without cutting through into the subway. Where the basement is excavated under the main floor the steam mains are run in this space and where not excavated a system of pipe tunnels were laid out so as to reach each and every radiator, except in a few cases where short runs in the floor fill are required.

In the kitchen the 50 lb. steam main is carried in a tunnel beneath the floor with connections up through the floor slab where steam service is required. All drips and returns from this system of piping are brass and are carried back to a flash tank where a vent pipe allows the vapor to escape and the returns are allowed to cool before overflowing into a trap connected to the vacuum pump.

The steam supply to the ventilating heaters is carried from the meter room at 50 lb. pressure up to the fan room where a secondary reducing valve lowers the pressure to 5 lb. to be used on the heaters. Originally it was intended to make this reduction in the meter room and to run 5 lb. steam to the fan room. This, however, would have resulted in a 10 in. pipe being required and space conditions were so tight that a pipe of this diameter could not be run to the fan room. It was possible to get a 6 in., 50 lb. line through, and so the reduction in pressure was made in the fan room instead of in the meter room.

The hot water heaters, of which there are four in the building, are all supplied with 50 lb. steam through a separate hot water steam supply line with pressure reducing valves set at 5 lb. pressure at the heaters. These lines, as well as the kitchen lines, are dripped through brass pipe and have the returns brought back to the flash tank by the aid of lift traps.

The piping connections around the flash tank are illustrated in Fig. 3.

One of the peculiar requirements of this installation was the supplying of hose outlets along the platforms for the entire length at distance of 100 ft. The water lines for these hose outlets had to be carried under the platforms for long distances across streets and other property under the track structure and had to be protected from freezing. This was done by paralleling the water lines with small 50 lb. steam lines which are furred in along with the water line and whose size is calculated to deliver enough heat to maintain the pipe space at about 40 deg. Fahr. with zero deg. Fahr. outside temperature.

From these platform steam lines valved branches are

(Continued on Page 163)

Fig. 4—View showing steam heating lines entering basement from tunnels and soil piping for main toilets on ceiling

More and more, attention is being turned to a new appraisal of our plumbing codes. And, as new construction increases, the urge will be that much greater for improving them

By R. M. Starbuck

How to Avoid Some Common Venting Mistakes

THERE is no end to the kinds of mistakes that can be made in venting and most of the mistakes that can be made are actually being made continually.

As all of us know, the only reason, or at least the principal reason, for the venting of the plumbing system, is that when the traps of the plumbing system are properly vented siphonage of the contents of the traps is prevented. This is of utmost importance, for whenever a single trap becomes siphoned, an unobstructed path is opened up for the passage through the trap and into the house of gases and odors from the sewer.

So then one of the great mistakes in venting is the installation of vents that do not vent. When the old crown vent was in use its opening into the trap quickly filled with grease, hair, lint, etc., and then the vent became useless. This would be an instance of a vent that did not vent. Here the reason for the uselessness of the vent is entirely clear, and long since that danger has been eliminated by prohibiting crown vents and replacing them with continuous vents.

In Fig. 1 the vent that has been installed does not vent the three lavatories, but the reason may not be so clear. This is a circuit vent and this type of vent is capable of properly venting the water closets. In the

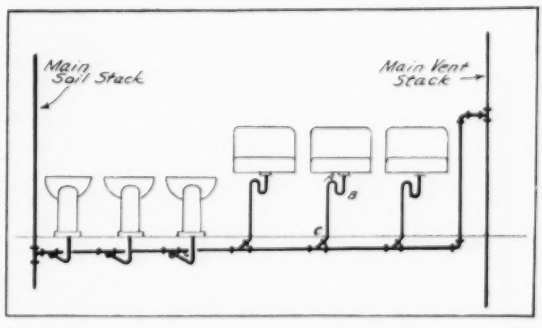

Fig. 1—Here, the vent which is indicated does not vent the three lavatories although the reason this is so may not be clear

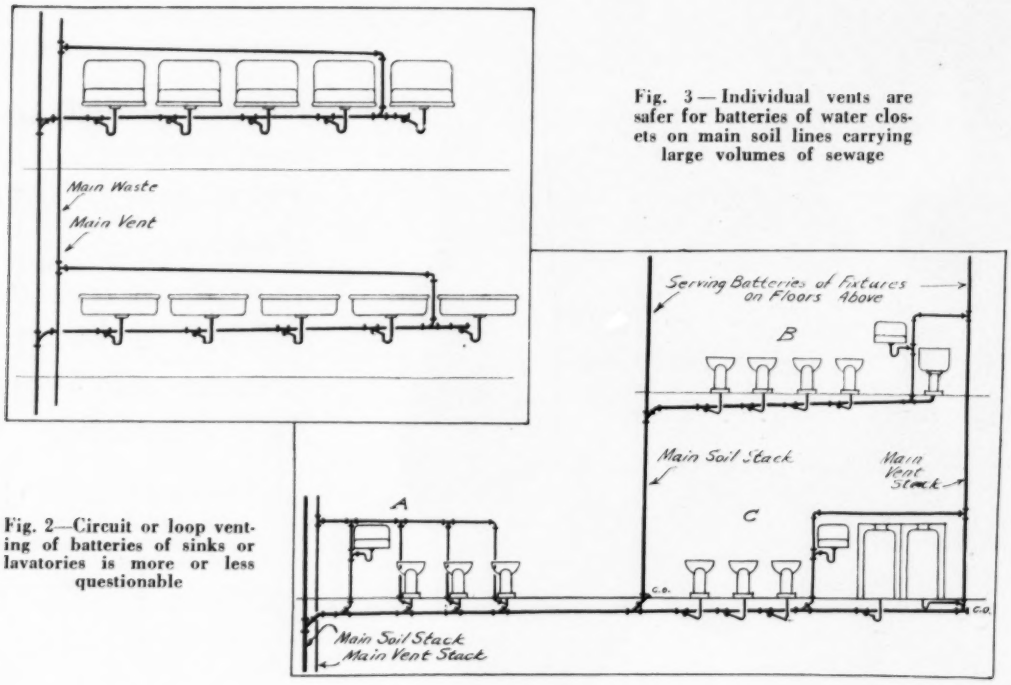

Fig. 2—Circuit or loop venting of batteries of sinks or lavatories is more or less questionable

Fig. 3—Individual vents are safer for batteries of water closets on main soil lines carrying large volumes of sewage

case of elevated fixtures, however, such as lavatories and sinks, the circuit vent as installed in Fig. 1 cannot possibly vent them, and therefore the practice of installing elevated fixtures on a circuit vent in the manner shown, is wrong and should be prohibited. This is not the first time, by any means, that this practice has been pointed to in this same way by us. We want to show why this vent does not vent these fixtures.

A siphon carries a liquid from a high point to a much lower point over an elevation. To operate, one of the arms of a siphon must be considerably longer than the other. Thus in the case of the three lavatories, the middle leg of the trap (between the levels A and B), which dips down into the trap, is the short arm of the siphon. The waste from the trap (between the levels A and C) is the long arm of the siphon. When both arms of the siphon become filled with water, the weight in the long arm being greater, causes it to run off, thus creating a suction on the shorter arm which draws the water in that arm over into the long arm and thence into the horizontal soil line. This continues until the trap becomes empty.

In this instance and in the case of all elevated fixtures installed similarly, the long arm is very much longer than the short arm, and this condition creates a strong acting siphon. Therefore, when any elevated fixture is installed on a circuit vented line, such as shown in Fig. 1, its set-up is very favorable to siphonage. That being the case, it becomes necessary to overcome the tendency to siphon. However, it is not possible in any way for the circuit vent to vent these three fixture traps and thus overcome siphonage. In order to break the action of a siphon, air must be admitted to it near the crown, A. The circuit vent provides the supply at the level of C, and air at this low point cannot possibly relieve the siphon. Therefore, according to our best judgment, the circuit vent does not vent these three traps in the least degree.

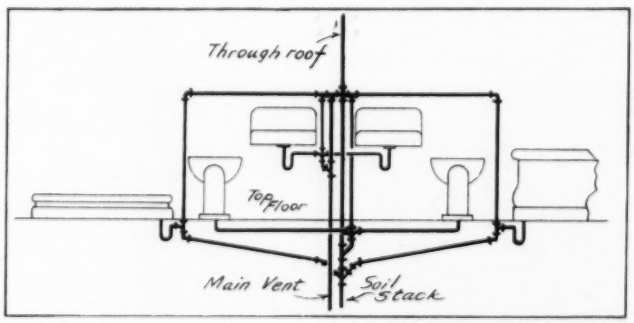

Fig. 4—Here is an example of over-venting. These fixtures are on the top floor and are vented more than necessary

More than once this point has been brought out and yet one of the very largest cities in this country accepts this practice as correct and perhaps a dozen smaller cities in that same section do likewise. Also, an occasional small city in other parts of the country accepts it.

The pilot chart of the large city mentioned, bearing the official signature, offers exactly the layout shown in Fig. 1, as accepted practice. A pilot chart, as the name implies, is supposed to lead or govern in these matters, and it certainly is to be regretted that the practice of a large city is being so misguided.

Such elevated fixtures should be vented in the regular

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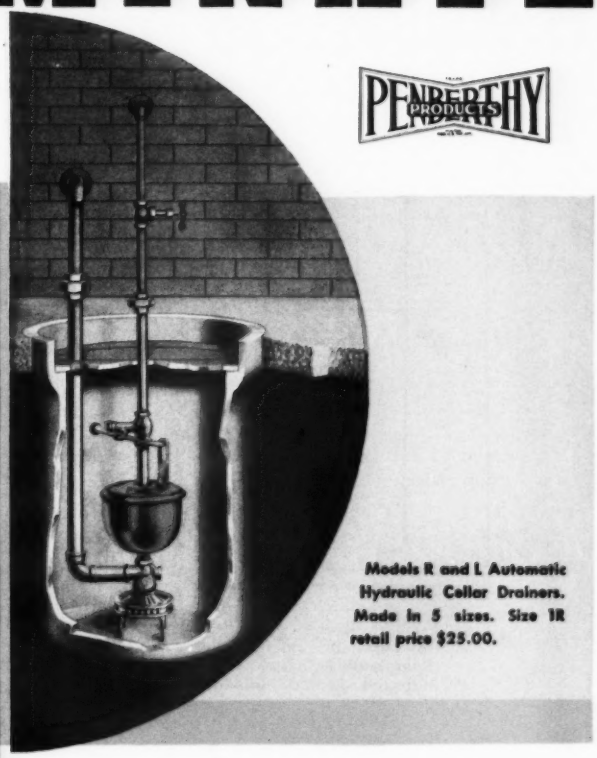
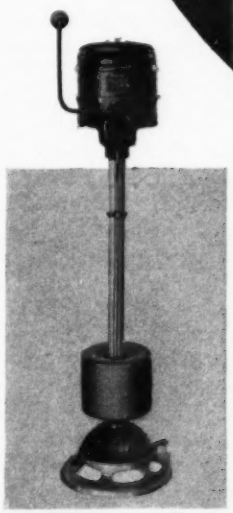
PENBERTHY PRODUCTS

Model K Automatic Electric Sump Pumps. Made in 5 sizes. Size No. 1K retail price $65.00.



Models R and L Automatic Hydraulic Cellar Drainers. Made in 5 sizes. Size 1R retail price $25.00.



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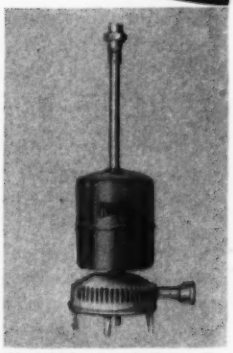

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way, as seen in three instances in Fig. 2. The drawing, Fig. 3 is presented for the purpose of directing attention to the proper method of venting such a group of water closets as shown at A. The use of individual vents as here shown, is correct, whereas circuit or loop venting would be entirely acceptable for the groups B and C. It will be observed that group A discharges into the line which is carrying the sewage from the toilet rooms B and C and from toilet rooms on floors above, which may often be a considerable number. When the use of these public toilet rooms is at its peak, it is conceivable that the main soil line may run full, in which case it does much to offset any saving that may be made by circuit venting over individual vents. All in all, on such batteries of elevated fixtures, we do not favor the use of circuit venting.

A fault which many plumbing codes show, is that of over-venting, or too much venting. This may sound strange, but it is true, and a study of pilot charts and of plumbing codes will prove the correctness of it.

The drawing, Fig. 4, will show what we mean by over-venting. This work is on a top floor—no fixtures above, and therefore, for fixtures so closely grouped about the soil stack as these, there is no danger of siphonage. Therefore, what need is there of all the fixture vents shown in this illustration?

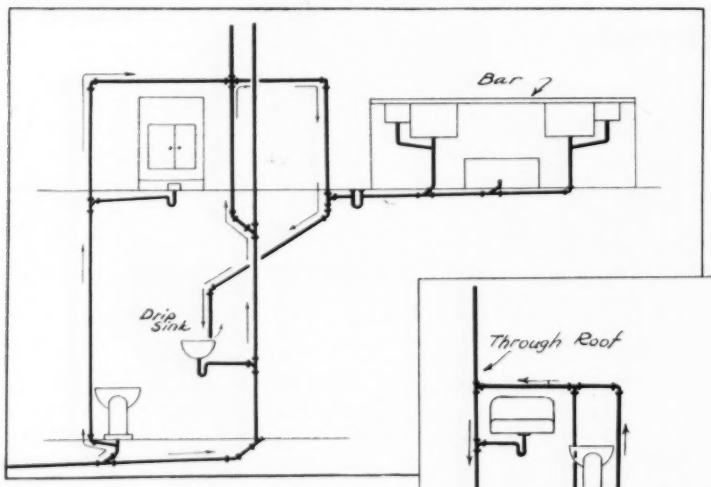


Fig. 5—Wrong vent connections for bars and refrigerators sometimes cause by-passes such as those indicated in the drawing above

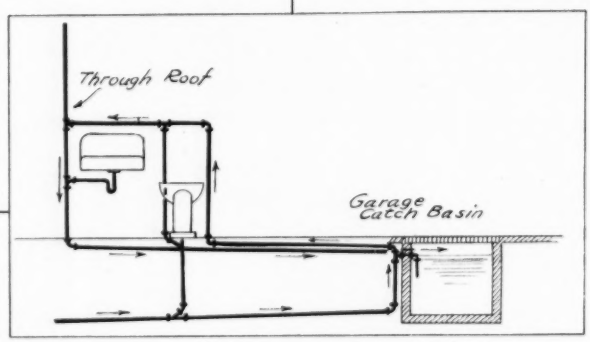


Fig. 6—The venting of a garage catch basin, to an unnecessary extent, sometimes causes a by-pass. Arrows here show the flow of gas into garage interior

cannot possibly act as a vent. It is for this reason that it is much better to vent batteries of water closets on main horizontal lines with individual vents instead of circuit or loop vents. Groups B and C are not subject to these conditions and therefore it is entirely correct to use circuit or loop vents.

A considerable number of cities accept circuit or loop venting for batteries of elevated fixtures such as sinks and lavatories. Work of this kind is shown in Fig. 3. We would not want to say, by any means, that it is wrong to apply this type of venting to elevated fixtures, but our preference is for continuous vents for them.

In circuit venting, the main horizontal line has to do double duty. It has to carry sewage, and at the same time in the upper part of the pipe it has to carry air, acting thus as a vent pipe. With a long flat line of waste, as shown in Fig. 2, there is naturally more or less likelihood of accumulations in the pipe. This is particularly true of a line serving sinks, which hold so much grease in their wastes. Moreover, lavatories are also subject to obstructions from hair, lint, etc. If circuit venting is to be used effectively, there cannot be anything like a sharp pitch on the main horizontal waste line. The answer to these objections might be the use of a large size of pipe, but this, of course, runs the cost up, and

We could point to a considerable number of officially signed pilot charts of cities which demand just such venting as here shown.

For the lavatories and water closets shown, there certainly is no excuse whatever for venting, for there is not the slightest element of danger from siphonage. We even feel that the shower and the bath tub would be sufficiently free from this danger to go without venting. It is wrong to demand installation of superfluous and unnecessary piping on any plumbing installation whatsoever.

Venting is made use of almost entirely to overcome siphonage, and when the danger from such action is entirely lacking, what reason is there for venting?

We have seen on two different official pilot charts the work shown in Figs. 5 and 6, and be it known that these charts follow the provisions of the code.

In both instances an indirectly connected waste is vented, and when such a waste is vented, a by-pass is created. The passage of sewer air into the interior of the building through such by-pass is shown by the arrows in each of these illustrations.

It can be laid down as a hard and fast rule that no indirect connection should be vented.

In connection with this article, but apart from the

general subject, we want to call attention to the fact that in our opinion the past six years has seen very little advancement in the quality of plumbing regulations for either states, cities or towns. It is not to be wondered at. Men have been too busy hunting for the next little job that was needed to keep the family going. And so it is that many a plumbing code is sadly in need of revision, of being brought up to date. And we hope that as business conditions improve we shall see efforts made in many directions to bring these improvements about wherever they are needed.

Also, in this same connection, the last six years have held such an experience for many and in fact for most men connected with the plumbing industry, that little attention has been given to those things that are of educational interest and value. Here also we look to see improvement as conditions come back to normal.

Whether it is in our public school system or in the plumbing industry, we cannot afford to forget the educational side of life. And so we hope and believe that interest in educational affairs concerning the plumbing industry are now reviving.

Examples of Everyday Mathematics

One problem is on how to measure the height of a chimney

AN inaccessible chimney has an unknown height which it is desired to know: How can this be done if no surveyors instruments are available? A hundred feet or so from the chimney a board is set up and sighted at the top of the chimney. When properly adjusted it is securely nailed to two uprights. Then a second perfectly straight board is set below it with a level so as to be truly horizontal. Then the vertical distance between the level strip and sighted board is measured at a point 100 ft. from the chimney and at a second dimension 5 ft. closer to the chimney. (See Fig. 1.)

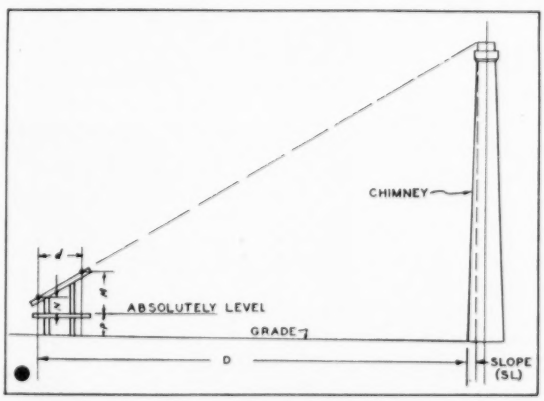


Fig. 1—It is desired to determine the height of the chimney indicated here. Surveying instruments are not available

The formula to use is

$$(9)\quad \frac{(D + sl) \times (M - N)}{d} + P = H$$

where

D is distance from chimney in feet.
d is distance between points on stick in feet.
M is distance from level to 2nd point in feet.
N is distance from level to 1st point in feet.
P is distance from ground to level in feet.
sl is the slant on each side of the chimney in feet.
H is the height of chimney in feet.

If P is 4 ft., N is 12 in., M is 36 in., and d is 3 ft., what is the height of the chimney? Assume a slope of 12 in. on the side of the chimney.

Substituting gives

$$\frac{(100 + 1) \times (3\text{-}1)}{3} + 4 \text{ ft.} = H$$

$$67\tfrac{1}{3} + 4 \text{ ft.} = H \text{ or } 71\tfrac{1}{3} \text{ ft.}$$

CALCULATING AREA OF FAN SHAPED POOL

One other problem for a little variety!—How much water is there in a fan shaped swimming pool similar to that shown in Fig. 2 if the water stands five feet deep?

One inner side of the pool is part of the circumference of a circle with a radius of 30 ft.; the other inner side of the pool is part of the circumference of another circle with a radius of 70 ft. both circles being swung from the same center. The area of a 140 ft. diameter circle is $140^2 \times 0.7854 = 15{,}394$ sq. ft. and of a 60 ft. diameter circle is

$$60^2 \times 0.7854 = 2827 \text{ sq. ft.}$$

and the area of the outer circle minus the area of the inner circle is

15,394 sq. ft.
2,827 sq. ft.

12,567 sq. ft.

but the ends of the pool from a 60 deg. angle which is

(Continued on Page 162)

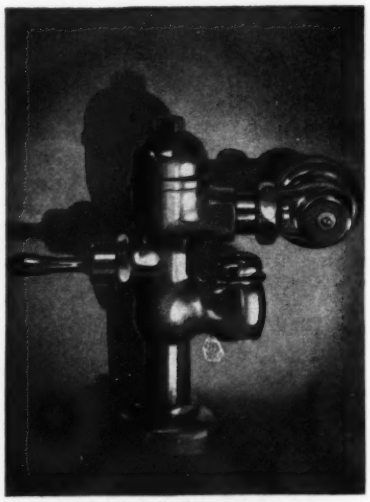
Guaranteed against BACK-SYPHONAGE

The Sloan Vacuum Breaker is guaranteed to prevent back-syphonage with any degree of vacuum in the supply line, when properly installed above the spill line of the fixture

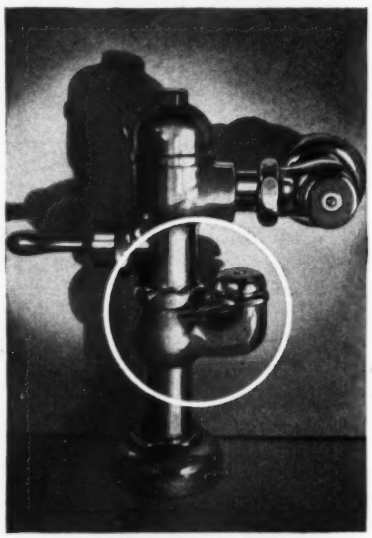
The Sloan Vacuum Breaker can be furnished **integral** with any Naval, Star or Crown Flush Valve in our catalog.

The **V-60** Sloan Vacuum Breaker is easily applied to old installations as well as new and will make **any** flush valve syphon-proof.

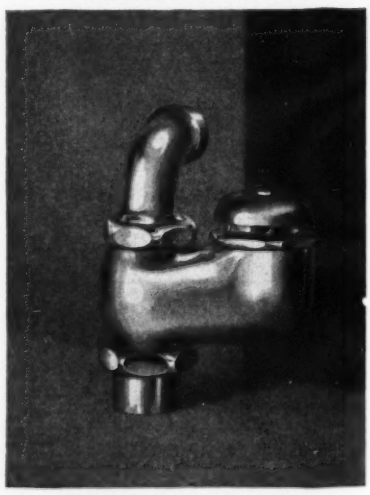
The **V-80** Sloan Vacuum Breaker positively prevents back-syphonage from any hospital fixtures with submerged inlets, such as arm, leg and continuous flow baths, receiving and pre-natal baths with hose sprays, fixtures with bedpan cleansing jet or hose spray, autopsy tables with hose connection, X-Ray developing and service sink cleansing jets.



Integral SLOAN Vacuum Breaker



V-60 SLOAN Vacuum Breaker



V-80 SLOAN Vacuum Breaker

EXCLUSIVE SLOAN FEATURES

1 The Sloan Vacuum Breaker has a full one-inch opening from the atmosphere into the supply connection to the fixture, which absolutely prevents a vacuum of any degree from causing back-syphonage.

2 The air valve closes instantly at the slightest flow of water to the fixture and opens the instant that the flow ceases.

3 The opening to the atmosphere is well protected and could not be easily stopped up, even with malicious intent.

4 The Sloan Vacuum Breaker cannot corrode or stick, as it has a Monel Metal bearing and parts of Composition M, an alloy used by the U. S. Navy to withstand the corrosive action of sea water.

5 Although a large volume of air is admitted, the operation is quiet and free from air noises.

6 The Sloan Vacuum Breaker has a waterway much larger than that through any flush valve; therefore does not restrict the flow to fixture, even though the pressure be low.

Full information may be obtained from any of our representatives, or from the main office.

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QUESTIONS AND ANSWERS!

1—

1. *Called upon to devise method of obtaining hot water from 400 gal. tank to numerous fixtures, this reader submits his own ideas for consideration. Engineer suggests gravity will be aided greatly if suitable conditions exist. If not, cold water tube, use of a relief valve, small tank located on the return pipe equipped with thermostatic control for a small circulating pump are among the suggestions. Method for determining rate of circulation is also given.*

2. *Reader assists fellow reader by answering question in February issue suggesting his method of eliminating pounding noise caused by electric pump.*

To the Editor:

I have been called upon to devise a method of obtaining hot water from a storage tank of about 400 gal. capacity to plumbing fixtures located in different parts of the building as shown on the sketch enclosed—Fig. 1. Never having had any experience in this kind of work, I am asking for assistance in making a satisfactory installation. In Fig. 2 I have shown my own conception of the method to follow and you will note that I have the pump discharging into the bottom of the cold water

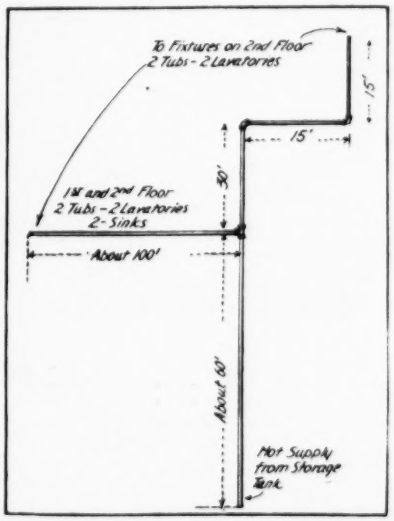

Fig. 1

supply with a check valve to prevent circulating the discharge back into the cold water piping to the fixtures.

Also am enclosing cuts of the pump under consideration and wish to know if this will work well with water that is 22 grains hard. Is it necessary that the pump be over 4 gal. per minute capacity? Is there any method of control that can be used to avoid having the pump run continuously except control by hand? I've asked a lot of questions but hope I am not presuming too much on your good nature as I will appreciate most thoroughly any aid you can give me.

M. J. P.

Wisconsin.

To the Reader:

We are always pleased to help readers with their problems and regret that we never have had the privilege of

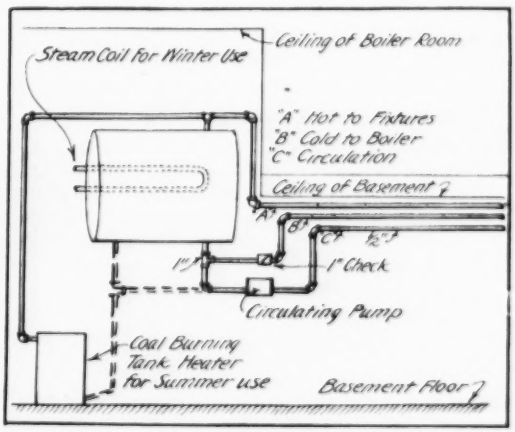

Fig. 2

working with some of them simply because they have never given us the opportunity by submitting their prob-

lems. Looking over our correspondent's sketches we note that his piping system is laid out in two branches both of which appear to have a riser to the second floor on the end of the branch. If the pipes are liberally sized he should be able to circulate by gravity except for the

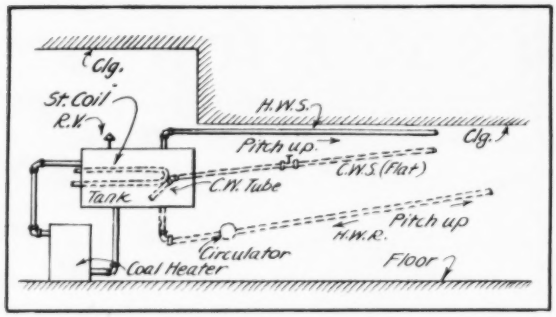

Fig. 3

fact that the hot water tank is placed too high necessitating a drop in the hot water supply line after leaving the tank. This will kill the gravity idea unless the tank can be lowered as shown in Fig. 3.

The use of a pump to circulate the water might not be necessary at all if the scheme shown in Fig. 3 can be arranged but the cold water should enter the tank through a cold water tube bent down as shown and a relief valve

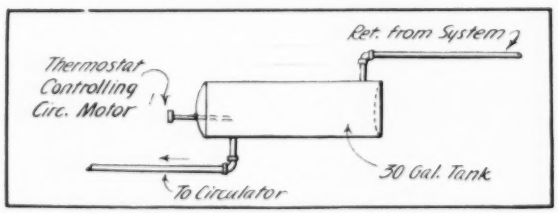

Fig. 4

should be used on the top of the tank to provide for expansion relief in case the cold water ever is shut off while the water in the tank is being heated. No check valve is necessary on the cold water supply but may be used if desired; the expansion of water in the tank usually is not sufficient to back out into the cold water line far enough to get into the fixtures. The summer heater may be connected up without valves and is better when so piped, as the water in the winter will cool off and lie in this heater without circulation. In other words this heater will circulate back and forth to the tank only when it has a fire in it.

The pump need not be as elaborate as our correspondent contemplates as a simple hot water circulator will be all that is required. These operate in the smallest size on a 1/10th h. p. motor and will permit gravity circulation right through the circulator when the circulator is not operating.

To cut off the circulator when it is not necessary to have it running we would suggest a small 30 gal. tank in the return circulation and a thermostat in this tank to start the circulator motor when ever the temperature in the circulation line falls below a pre-determined point such as 120 deg. Fahr. or somewhere around that temperature. This thermostat should be located near the bottom of the tank as shown in Fig. 4.

If the tank cannot be lowered as shown in Fig. 3 then it may be installed as shown in Fig. 5 with a vent to free the high portion of the supply main from air, this vent being either in the form of a piece of pipe in which the air can collect and be relieved through a pet cock or in the form of a connection to some nearby fixture

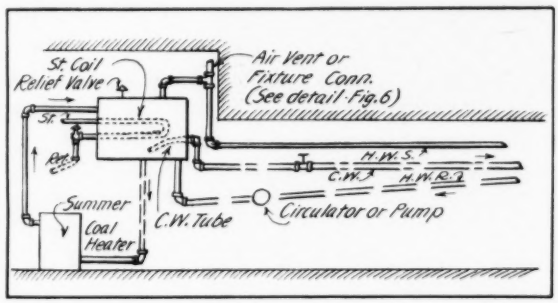

Fig. 5

taken off of the top of the hot water line so that air accumulating there automatically will be blown out into the fixture whenever the faucet is opened. See Fig. 6. Otherwise the tank would be piped as already explained in the previous suggestion with a cold water tube, relief valve, circulator, etc., and the coal burning stove would be arranged in the same manner. There is no reason

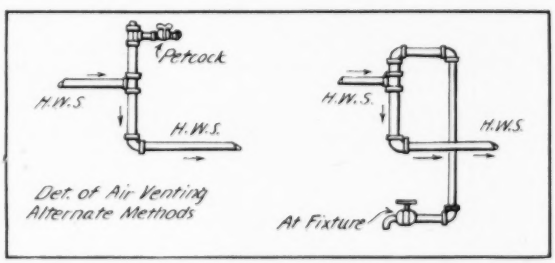

Fig. 6

why either the pump or the circulator will not handle hard water without difficulty.

The question as to whether 4 gal. per min. is sufficient circulation or not is a matter which must be answered by the allowable drop in the water being circulated. If our correspondent will calculate the outside surface on all of the pipe in the circulation circuit and will multiply the square footage by 80 degrees and 2.3 Btu. he will have the approximate Btu. that will be lost from the line with bare pipe; if this is multiplied by 100% — 70% (the average efficiency of the pipe covering) the result will be the approximate actual heat lost. If the water is assumed as not dropping over 10 degrees in the cir-

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cuit it will be seen that the number of pounds of water to be circulated will be the Btu. lost divided by 10 and the number of pounds divided by 60 and then by 8⅓ will be the g.p.m. necessary to prevent the fall in temperature exceeding 10 degrees.

Thus, if the line from the tank to the split in the main is assumed as 1¼ in., and the piping beyond the split is assumed as 1 in., and the risers are approximately 10 ft. high, we have:

60 ft. of 1¼ in. pipe @ 2.3 per sq. ft..26 sq. ft.

100 ft. of 1 in. pipe
10 ft. "
60 ft. "
10 ft. "
180 ft. of 1 in. pipe @ 2.9 per sq. ft..62 sq. ft.

Total ..... 88 sq. ft.
Doubling for the return gives.....176 sq. ft.

Then

176 × 2.3 Btu. × 80 degrees × 30 per cent or 9,700 Btu. approx., and the pounds of water required will be:

9,700 / 10 or 970 lb. per hr.
970 / 8⅓ = 117 g.p.h.
117 / 60 = 2 g.p.m. (almost)

Therefore we should say that a pump with 4 g.p.m. capacity should be more than sufficient.

2—

To the Editor:

Answering the question of B. N. H. (Penn.), February issue, we eliminated recently the same trouble he is experiencing. We found the drop pipe to the cylinder was too small; corrected same by installing a 2 in. drop pipe (in place of the 1¼ in.) to take care of the 2½ in. cylinder. We would suggest that the screen be removed.

The pump pulls the water out of the 1¼ in. drop line. The water does not flow in fast enough, thus creating a vacuum on the pump, and causing it to pound.

Fort Wayne, Ind. T. J.

Note: The question referred to in the foregoing is as follows:

Can you assist me with a problem that I have on my hands? It has to do with an electric pump which pumps from a well and into a pneumatic tank. The difficulty consists of so-called pounding of the pump every three out of six strokes. I have learned since I installed the pump that I should not have dropped, or formed an air pocket, between the pump and the tank but the pipe is all beneath the basement floor now and difficult to change; if you can suggest anything to overcome the severe pounding I should appreciate it.

Penn. B. N. H.

Questions for Readers to Answer

The following question was asked in the December issue and the following answer is by a reader:

In an installation requiring 1,000 gallons of hot water at 150 deg. Fahr. once every three hours during a draw-off period of 5 minutes and with the water coming in at 50 deg. Fahr., if the water is heated by steam what arrangement would introduce the least hot water load on the steam boiler?

This question revolves around the fact that the water is drawn off at infrequent periods and in large quantities; should water be heated instantaneously or should storage provisions be made, and if a storage tank is installed, how much storage and how many gallons per hour should be the capacity of the heating coil? First, the results of using instantaneous provisions will be considered.

In the case of the instantaneous heater no water at all would be heated until the water started to be drawn off and then 1,000 gallons of water would have to be heated in the space of 5 minutes. During this 5-minute period then the water would have to be heated at an hourly rate of 1,000 gallons times 12 or 12,000 g.p.h. Then, if the incoming water is at 50 deg. Fahr. and must be heated to 150 deg. Fahr. the temperature rise will be

Temp. of heated water .....150 deg. Fahr.
Temp. of incoming water ..... 50 deg. Fahr.

Temperature rise .....100 degrees

while the number of pounds of water required during the 5-minute period will be

1,000 gals. × 8⅓ lb., or 8,333⅓ lb.,

and this quantity of water raised 100 degrees will require

8,333⅓ × 100 or 833,333 Btu.

which is equivalent to a load of

833,333⅓/240 or 3,472 sq. ft. E.d.r. in 5 min.,

which is

3,472 sq. ft. × 12 or 41,664 sq. ft. E.d.r. per hr.

This is a big load and can be greatly reduced by providing storage capacity; for example, suppose a tank with 500 gallons net storage is installed. Then in the three hour period a reserve supply of hot water would be built up consisting of 500 gallons and, when the time of draw-off came, it would only be necessary to heat 500 gallons in a period of 5 minutes the other 500 gallons coming from storage. This would entail a boiler load of just half what the instantaneous heater would require for the period during the draw-off and a continuous boiler load

(Continued on Page 161)

How Would You Answer This Question?

What is a cross connection and what examples have you seen of this type of connection? Why is it dangerous?

Answers based upon your experience, suitable, will be paid for and published in the May issue.

Automatic Heat *and* Air Conditioning

Uncle Sam and Time Payments

Those who are promoting the sale of automatic heating and air conditioning products will find new encouragement and stimulus in the increasing activities of the Federal Housing Administration. Through this agency, the federal government is encouraging time payment selling, a decided sales advantage in the merchandising of this equipment. With the gas utilities usually ready and trained in financing installment selling, dealers in, and manufacturers of other forms of automatic heat and air conditioning should study the effect on their business of the federal government boosting time payments.

▼ ▼ ▼

Master Kraft Introduces TRIPALATED Oil Heating

Watch for This Amazing Message on Master Kraft TRIPALATED Oil Heating

Can You Sell This REVOLUTIONARY IDEA?

That is the basis of the Master Kraft Sales Plan for 1935—A New Development in oil burner design that gets more heat from fuel oil!—that cuts down fuel consumption!—that uses more of the heat developed!

With this we offer you a bigger, more powerful, more dramatic advertising program. Giant posters and displays. New books. New folders. But the BIG thing is *2 Months FREE Heat Every Year.*

If you want to sell this revolutionary idea don't wait for the announcement shown above. (Your name may not be on our list) Send the coupon immediately. There's money in the Master Kraft Franchise—*and the Franchises are going fast.*

Harvey-Whipple, Inc.
257 Emery Street
Springfield, Mass.

Send us full particulars on your 1935 sales plan—"2 Months FREE Heat Every Year."

We sell —— do not sell —— a burner now.

Name .....

Address .....

Town .....

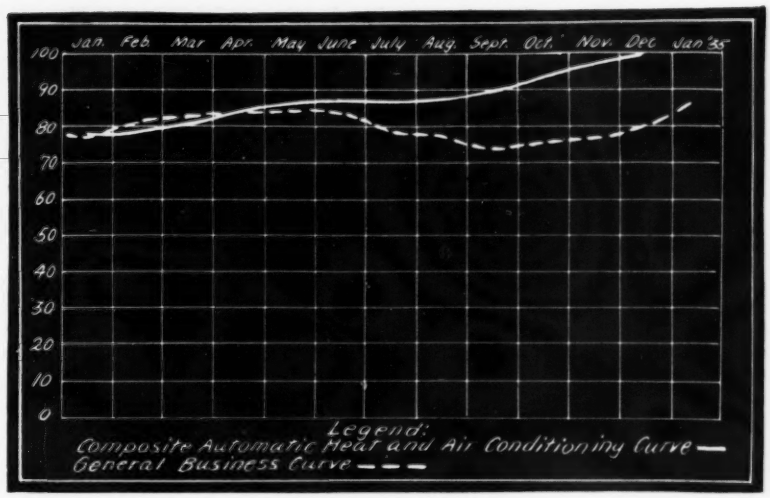


Fig. 1—As indicated by these curves, automatic heat and air conditioning business as a whole (see solid line) is considerably better than business in general (dotted line)

A. H. and A. C. Index* Shows Business is Better

By *The Marketing Staff* of
Automatic Heat and Air Conditioning

FINAL figures for 1934 show that it was the best year in the history of the automatic heat and air conditioning industry. In round numbers 150,000 automatic heating units were sold, the largest in any single year to date. Manufacturers of domestic and small commercial air conditioning appliances tell us that it was their best year also.

Now that business is showing a steady upward trend it will be interesting to watch the progress of this industry in comparison with industry in general. A composite curve has, therefore, been developed by Automatic Heat and Air Conditioning which will show the trend of the industry. It is shown on this page in comparison with the general business curve from the government's "Survey of Current Business."

This industry has developed so rapidly in recent years that it is hardly fair to consider any year prior to 1934 as the basis for the composite automatic heat and air conditioning curve. The general business curve is based on the 1923-24 average. If the automatic heat and air conditioning composite curve were based on the average for the same years it would, of course, be considerably above the general business curve. To make a fair comparison, therefore, the composite automatic heat and air conditioning curve has been based on the year 1934.

In each ensuing issue of Automatic Heat and Air Conditioning the latest available information will be plotted on these curves. Both manufacturers and dealers will then have a reliable index with which to check their sales. As was demonstrated by the oil burner industry the first half of last year, one branch of the industry may show a trend somewhat different than that of the industry in general, as well as that of general business. When such facts become apparent a check up as to the causes should result in information that will help both to lengthen the high spots on the curve as well as to shorten the low spots.

The final 1934 oil burner shipments as reported by 149 manufacturers are shown below in comparison with 1933:

	1934	1933	% increase 1934 over 1933
Domestic—Mechanical Draft.	72,995	67,072	
Domestic—Natural Draft....	6,841	7,201	
Industrial—Mechanical Draft	7,238	6,222	
Industrial—Natural Draft....	2,705	2,635	
Boiler Burner Units.....	8,361		
Furnace Burner Units.....	706		
Totals	98,846	83,130	18.9%

(Continued on Page 111)

*Note: This introduces a new feature which is designed to show our industry, at a glance, how business is progressing.

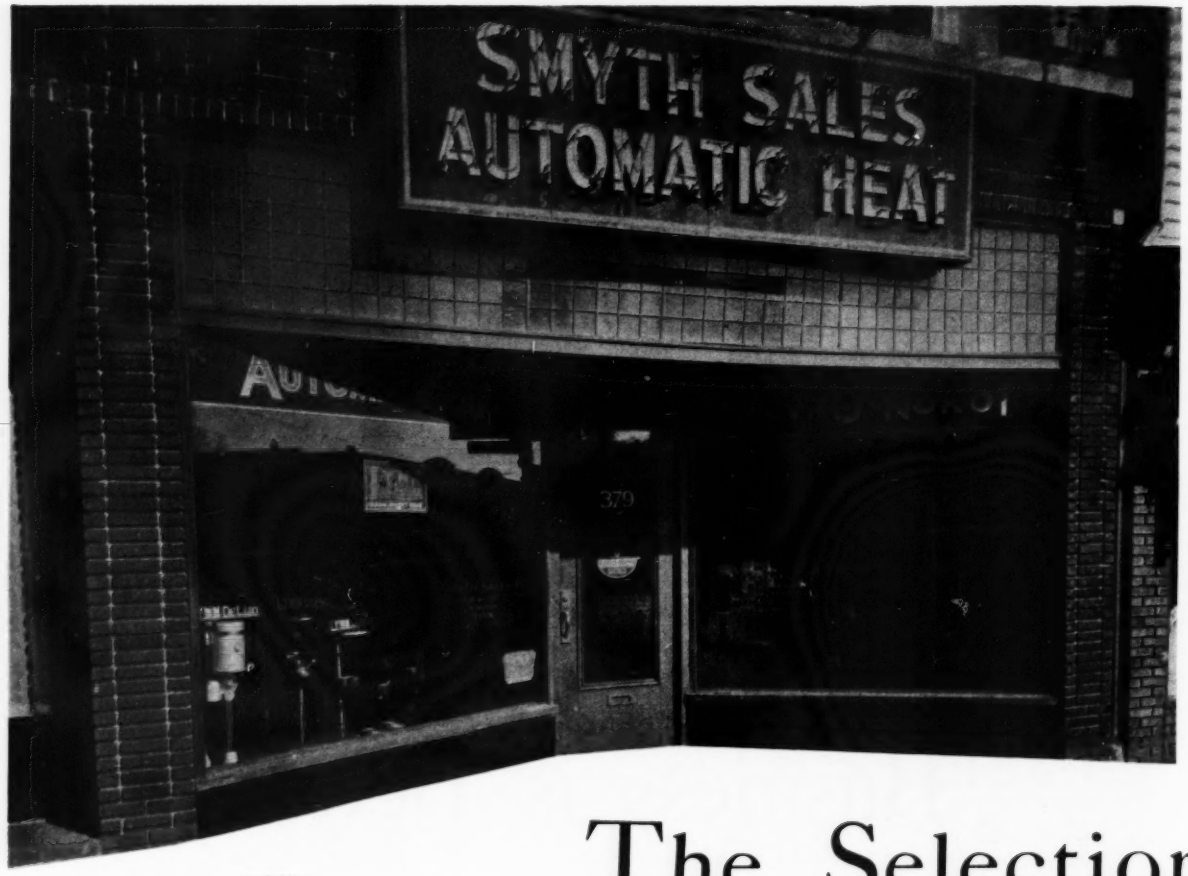


Fig. 1—Mr. Smyth is in business to sell automatic heat as is indicated by the window lettering and the electric Neon sign on his building

The Selection of Success in

"MANPOWER continues to be a dominant factor in oil burner and automatic heating selling," states L. C. Smyth, president, Smyth Sales, Inc., Montclair, N. J., one of the leading appliance dealers in this state. Discussing the ideal burner salesman in his office recently, he declared that knowledge of heating and engineering are good foundations and men so equipped usually make good oil heating salesmen if they submit to direction and are not addicted to soft chairs during business hours. Equally good men are those who are high in intelligence and quick to acquire expert tutoring from headquarters.

It is apparent that before men can be trained, however, they must be acquired as employees. And this is not always as easy as it sounds. To recruit a well-rounded, co-operative force one must resort to all known methods. Failure to recruit has spoiled many a good dealership. Personal relationship, hard to define in a few words, usually is the key.

L. C. Smyth first tried newspaper advertising. This developed a few good candidates, but has been discontinued of late as not producing the desired results. Occasionally mechanics and service men become good salesmen, though not often because they lack social polish that enables them to sit comfortably in prospects' handsomely furnished dwellings and offer convincing arguments. Smyth's best men have been acquired by invitation.

In the course of his travels the dealer meets men who he feels would make good men for his staff. The subject is broached, earning possibilities stressed and his appeals have been successful enough to keep all of his nine closed territories filled.

In selecting men to sell the oil burners, oil-fired boilers, room circulators, air conditioners and water heaters that make up the Smyth line no heed is paid to age. Frequently men over 60 work out well because of their seriousness and experience. Youngsters, while likely to make mistakes, usually make up for the deficiency by great activity. Women are barred as a rule because most oil burner orders come from the man of the house rather than housewives. Although salesladies are ac-

Fig. 2—At the right is the showroom and office space. The boiler set on the tile platform is arranged so as to demonstrate the actual operation of the oil burning equipment sold

In addition to being president of his own company, Mr. Smyth, whose successful selling and business activities are described here, is president of the National Oil Burner Dealers Association. The experiences he has had and the methods he has employed in obtaining men for his organization are noteworthy

ceptable to housewives, the experience of Mr. Smyth indicates that the "fair sex" falls down on engineering and fails to inspire confidence in the man of the house.

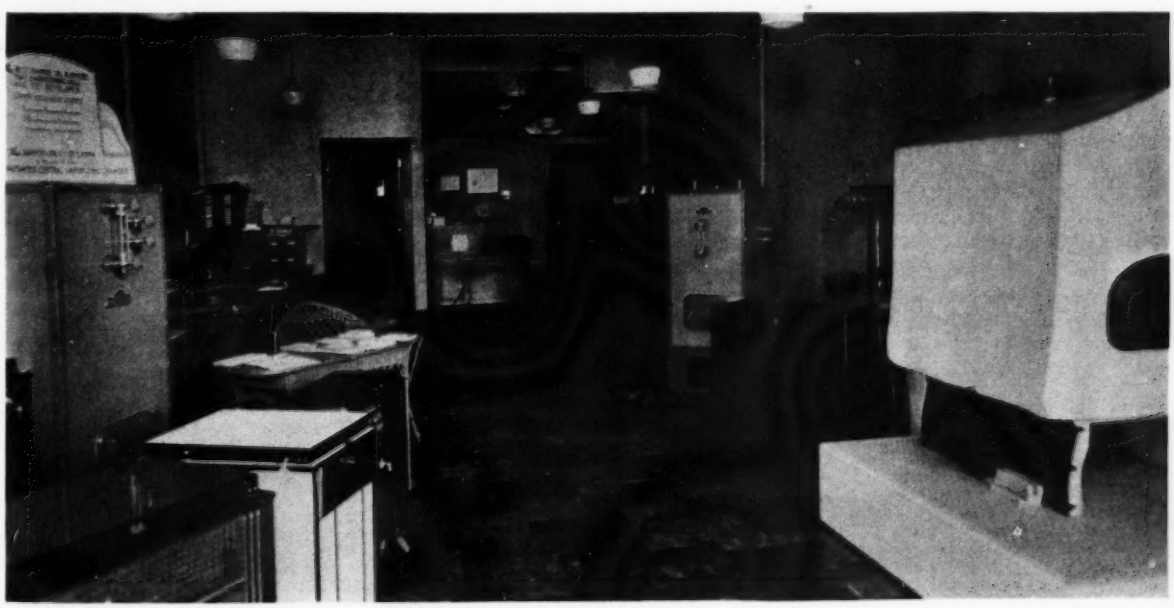
In examining candidates for the sales force it is made clear that an appliance salesman's work cannot be concluded at five o'clock. In fact, Smyth relates that 80 per cent of his orders are signed after six o'clock. Men who are squeamish about their meals and fond of many social engagements seldom can qualify. In suburban territory many local residents commute to city offices and prefer to discuss automatic heating after their evening dinners.

"Difficult as salesmen recruiting is," says Mr. Smyth, "even more difficult is their training before they are allowed to make outside calls. Promising men are sent to the factory of the manufacturer whose burners and boilers are being handled. New men must become familiar with all literature commonly used in sales work. They must learn about heating systems, their advantages and disadvantages. Naturally, men who already know heating have their preliminary education periods shortened. Following office study, new men are taken out by the sales manager, employed on a salaried basis. Later they are asked to make inspections of existing installations."

MANY SALESMEN MADE INEFFECTIVE

It is the opinion of this dealer that thousands of new salesmen have been rendered ineffective by sending them out without proper training, whereas, on the other hand, equally as many are being molded into high grade order-getters through proper training. The training period also is a proving period. If it is evident that candidates never will become expert automatic heating salesmen,

# of Men Listed As Basis Oil Burner Dealer Sales



they are released as soon as this becomes apparent.

Making salesmen work hard is a major problem. Mr. Smyth has tried all the usual high pressure pep-up methods such as plotted charts, contests, teams, bonuses, drives and the like and discarded them. It is felt that the best results are achieved by personal encouragement and treating all his men as individuals.

HOW HE HANDLES HIS MEN

Those who respond to bullying are bullied. Those who seek sympathy are sympathized with. Those who respond to praise are praised. In some cases wives prove more effective effort-producers than expert sales managers. As all salesmen must visit their office every morning and file daily reports of visits, the names of all active prospects are known both to Mr. Smyth and his sales manager. Conferring with individual men about their individual prospects provides the personal touch so welcome to all employees and, at least in Smyth's case, gives the work spur desired.

As already said, this New Jersey dealer's territory is divided into nine sections, each one entirely protected so long as men are employed by Smyth and a single man assigned to each territory. This does not, however, apply to the home town of Montclair, which is open. The reason is that as all men spend one evening in 10 at the showroom for floor duty they can make appointments with local prospects for display room visits. As prospects are filed for protection, usually there are several men at headquarters every evening.

Successful automatic heat selling calls for an attractive display with a working model, in the opinion of L. C. Smyth. To promote this there are shown an oil-fired, round steam boiler ready to operate and set on a white tile platform, two literature tables, several gun and rotary types of conversion burners on stands and tables, and two oil-fired boiler units in green, square jacketed casings. On one side of the central aisle are several oil burning range-top space heaters, a wall humidifier, and air conditioning cabinet unit and range burners. On the other side of the aisle are conversion burners, the working model and two oil fired boilers. Plenty of comfortable lounges and easy chairs are placed conveniently.

Experience indicates that it is sound judgment to prolong the visits of prospects long enough, at least, so one can explain all the good features of the equipment offered. This points to well upholstered furniture. Visitors who dash in, glance quickly about and hasten on are found harder to sell than long-stayers. Thus, motives other than the desire to be hospitable suggest comfortable appointments for visitors at Smyth's.

Low competitive prices prove the hardest selling obstacle just now in and around Montclair. This places a premium on good salesmanship. Smyth always has been unwilling to compete by reducing prices. It is held to be better to continue to talk quality and service.

L. C. Smyth sees no inclination towards over-the-counter oil burner selling. Direct-to-you competition, thought to be due entirely to depressed business conditions, has made no headway in city and suburban areas where handymen either are incapable or disinclined to install. Folk who lean towards direct purchasing would, he emphasized, be without service unless this were obtained through established dealers.

SALES MARKET INCREASING DAILY

The sales market for oil-fired boiler units is found to be increasing daily, particularly as replacement units for worn out plants and for new buildings. Failure of folk to order repair work in recent years has accentuated the exhaustion, or mortality, rate of existing heating plants, this paving the way for expanded oil-fired unit sales.

L. C. Smyth is shaping his personnel to handle growing demands as to engineering as a companion to successful automatic heat selling by insisting on wider knowledge and experience in his service men and employing more competent fitters. These men are asked to keep their eyes open for possible modernization of heating systems in every basement visited. More and more general heating work is the natural outcome of this.

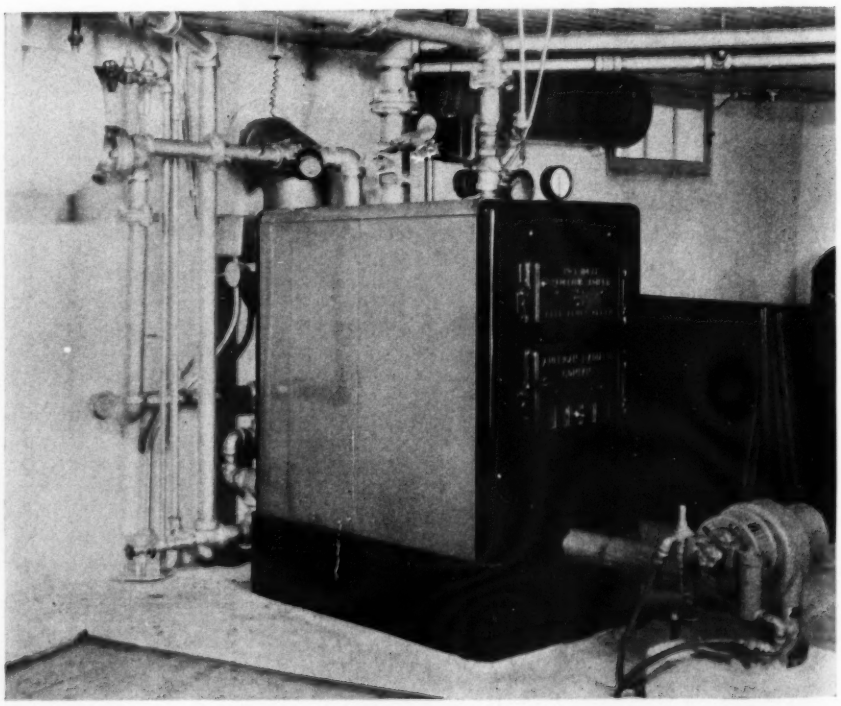


Fig. 3—This automatic heating installation is representative of the type which Mr. Smyth's organization sells and installs successfully

Draft — How to Test for it on Oil Burner Jobs

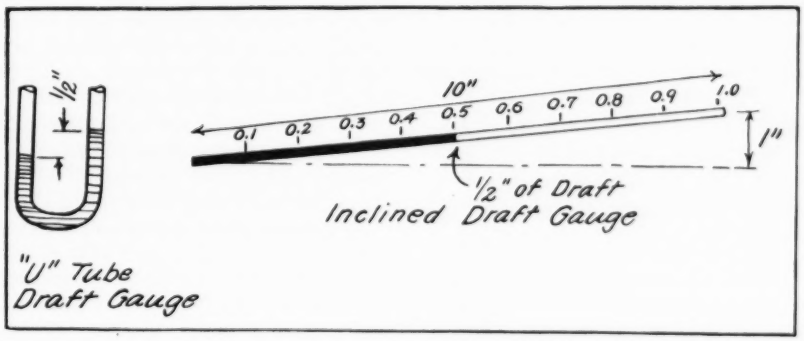


Fig. 1—Sketch of essential features of a draft gauge

This article also covers other items to consider in tests

EVERY contractor-dealer who installs an oil burner is likely to be called upon to make a test at some time or other and should be prepared to defend himself by solid facts from any blame that otherwise might be attached unjustly to his installation without such data. It is the purpose here to outline what such a test should include and also to present some practical information which may be used in cases where test apparatus is not available but which may serve the purpose in case of emergency.

The ultimate object of all testing is to ascertain if the burner is producing the greatest amount of heat with the minimum consumption of oil and everything that is done in a test has this ultimate object in view. The burner performance is so closely tied up with the boiler, in many instances, as to be inseparable; that is to say, the point on whether the burner is efficient—as far as the owner is concerned—also turns on the item as to whether the boiler also is efficient as the owner is interested in the amount of available steam or hot water produced. To him, the steam or hot water equipment is a single unit. Hence a high efficiency burner may liberally be claimed to include a high efficiency boiler on the ground that if either is inefficient the results are going to be unsatisfactory.

But here a difficulty arises; the burner manufacturer

The following question from a reader is interesting in this connection because it indicates what the service and installation men are up against on actual jobs:

To the Editor:

Gentlemen: Where can we procure information so that our service men may know what to work for in using draft gauges on oil burner installations. This is a subject which is of interest to all installation and service men who are anxious to obtain best results. What should the readings be at the different places where they might be taken

Danville, N. Y. S. U. M.

To the Reader:

Very little draft is required with oil burners as there is no draft loss through the fire to speak of and the draft in the smoke outlet of the boiler is only that necessary to draw the gases through the boiler. In the ordinary cast iron boiler the boiler draft loss usually approximates about 1/10 in. and an old oil burning authority claims that the draft at the firing door should only be sufficient to draw the flame of a match in through the crack around the door but not enough to extinguish the match. That is to say there should be only enough draft in the smoke box or smoke outlet to produce this slight negative draft in the combustion chamber.

In making an oil burner test a draft gauge should be used as a measure of the conditions under which the test is carried out. Too much draft is not desirable as it is likely to draw too much air through the fire and cause low CO_2 readings due to excess air. Of course this means low efficiency and a burner requiring more oil than actually should be necessary.

can hardly be held responsible if the contractor-dealer places his burner on a notably inefficient boiler, or even on a first class boiler unsuitably installed, such as being connected to a smoke flue of inadequate size. This brings us down to the point where it becomes evident that the burner must suit the boiler and the boiler must suit the job before satisfactory overall results will be secured for the owner.

Thus we arrive at a conclusion that an oil burner test not only is for the oil burner installation but also is for the boiler installation and to determine *if any deficiency exists in the boiler installation for which the burner is not responsible* and for which the oil burner dealer should not be held liable. This is not said with any idea of providing an "out" for the burner dealer but is only a matter of common sense. It also lays on the contractor-dealer the responsibility of not installing a burner under a boiler which for any reason is bound to produce poor results.

The basis of an oil burner test is the amount of heat in the oil and the amount of oil used, which is only another way of saying the "heat input." Ordinarily it will be sufficient to accept the oil supply company's guarantee of the heat value in the oil or Btu. content. In case of a lawsuit it would be wise to have a heat test made on the oil used by some laboratory experienced in this work as the heat content does vary some in different oils.

The *quantity of oil used* in ordinary cases may be found by attaching a container of given capacity as shown in Fig. 3 and timing the interval required for the burner to empty the container when drawing oil from this source instead of from the tank. In cases of greater accuracy the oil should be weighed and fed through the container for the duration of the test as in this way any expansion or contraction of the oil due to temperature is eliminated from the factors to be considered. A pound of oil is a pound of oil no matter what the temperature.

Knowing the rate at which the oil is fed per hour and the heat content of the oil, it is a simple process of multiplication to determine the heat input for the oil "as fired" under the boiler.

In the case of high pressure boilers the heat delivery usually is obtained by calculating the steam heat content and subtracting the feed water heat content and measuring the steam produced which most frequently is accomplished by measuring or weighing the feed water. Here again the simple process of multiplying the heat added, while passing through the boiler, to each pound of steam times the number of pounds of steam produced will give the heat delivery, but this process usually is rather difficult to perform in the ordinary domestic installation. So, it is obtained in another way.

Primarily this second method is a measure of the combustion factors and a comparison of these factors with similar factors obtained from other installations. For example, it is known that the draft in the combustion space at the fire should be between 0.02 and 0.03 in. of water. It is known that for good efficiency the gases at the outlet of the boiler should not be over 500 deg. Fahr. and 450 deg. Fahr. is even better. It is known that the CO_2 content of the flue gases should run from 10 to 12 per cent. It is known that the temperature in the combustion space (not the flame temperature) should be around 1,700 deg. Fahr. but may vary from 1,400 deg. Fahr. to 2,200 deg. Fahr. without affecting materially the efficiency. So that, if a test on these factors is made and they all show up reasonable well, it is evident that the efficiency of the installation is good and that no wrong adjustment or improper relation exists.

This may best be performed with an inclined draft gauge on which very fine readings can be made. The ordinary "U" tube will also give an indication of the draft but cannot be read in hundredths of an inch, the reason being that the inclined draft gauge stretches out the inch into a much greater length thus permitting finer readings. This is illustrated in Fig. 1, and it will be seen that, if the inch of vertical height is run up an incline which is, say, 10 in. long, one-half of an inch would be half way up the incline or would be ten times as far from zero as with a vertical "U" tube. Thus it

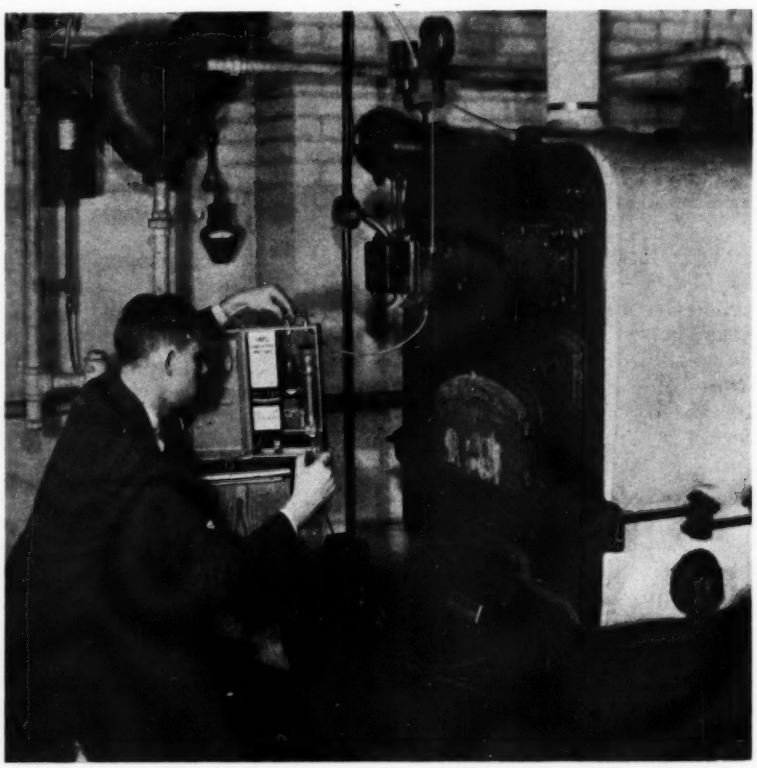


Fig. 2—One authority points out that probably no one factor governing the installation of heating plant gives the installer more concern than the problem of providing proper amount of draft

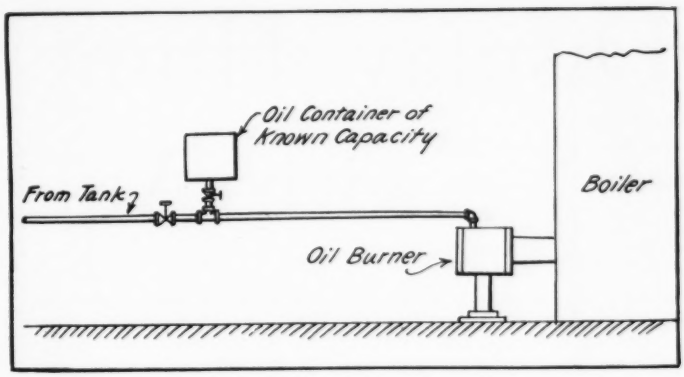


Fig. 3—The diagram indicates one method for determining the rate of fuel consumption for an oil burner. Note that a container of known capacity is used to serve for the supply during the test

is possible to read graduations one-tenth as large as in the "U" tube and with the same distance between each graduation.

The draft is the first thing that should be regulated and if it is too strong the damper should be partially closed until the proper reading is obtained in accordance with the amount previously noted.

All radiators should then be turned on and the rooms kept at approximately 70 deg. Fahr. by opening windows, if required, when the outside temperature is above the minimum for which the system was designed. This is for the purpose of obtaining the correct radiator loading which would occur with a minimum outside temperature and 70 deg. Fahr. in the room. If a water tank is heated from the boiler the tank should be allowed to heat and then the water should be allowed to run so as to draw off about the same quantity of hot water per hour as was estimated on the requirements allowed. When all this has been set in motion the boiler would be operating so as to approximate the maximum load which would occur on a zero day.

The stack temperature should be read at frequent intervals during the test and the results averaged for a stack temperature amount. These may be taken by any calibrated device which will stand temperatures as high as 700 deg. Fahr. and which will indicate such temperatures. By calibrated we mean a temperature indicating device which has been compared with some other instrument of known accuracy and which reads in accordance with the other instrument or has had a correction factor developed which must be used to obtain the correct reading. An unduly high stack temperature may indicate an under-capacity boiler, a boiler with excess soot on the heating surfaces or a boiler with scale inside on the heating surfaces.

In the last issue, there was discussed the subject of CO_2, what it is, how to test for it and its significance in oil burner installations. However, there are other factors to be taken into consideration and these include the matter of draft, fuel oil consumption and the like. These items are described here. Later issues will describe experiences and methods to follow in shooting oil burner trouble installations

PRESERVE DATA FROM TESTS

The CO_2 reading is a most important one as it is an indication of how much excess air is being admitted and, if not made, you cannot positively assert that the burner is doing what it should. For example, the stack temperature may be reduced to very desirable limits by admitting a large amount of excess air but the efficiency is way down when this is done.

Ordinarily the temperature in the combustion chamber is not investigated unless trouble develops of some nature making this desirable. When so taken it should be done by means of an optical pyrometer used on the chamber immediately after shutting down the burner following a considerable length of run.

All of the data secured during an oil burner test should be noted and preserved for future reference in case of later difficulties and to serve as a criterion in other tests to be run in the future on other burners. If the stack temperatures continue to run too high it is a sign of the boiler heating surface being inadequate for the amount of heat developed by the burner and may be caused by an undersized boiler or an excessively large burner. Anyone experienced along this line can tell, however, by an inspection of an accurate burner test as to what, if anything, probably is wrong.

In the matter of testing oil burners, it is interesting to note ideas from other sources. One authority points out that probably no one factor governing the installation of heating plants gives the installer more concern than the question of whether or not adequate draft has been provided.

Another writes and tells us, as a result of publishing an article on this subject in the February issue, that he thinks this type of material undoubtedly will prove very enlightening and interesting to many men in the industry and that he is pleased to commend our judgment in sensing the need for such fundamental material.

Display Home Is Modern with Automatic Heat

Air conditioning and electrical features work to attract attention

A COMPLETE six-room home, modern in every respect from its doorway with illuminated street number and key-hole, through its hall, living room, dining room, bedroom, bath, to its completely electrified kitchen and basement room with its oil burning boiler and air conditioning equipment, is being constructed in the heart of downtown Buffalo on the main floor of the Electric Building, at Genesee and Washington Streets. The Modern Electric Home, as it is to be called, is designed to afford the housewife a source of home-making ideas in heating, lighting, air conditioning, interior decorating, and furniture arrangement which she can readily apply in her own home. The paneling, the tasteful color combinations of rugs and upholstery, the arrangement of knick-knacks, a thousand little things that go to make a home distinctive, will be as interesting to the housewife as the profusion of electrical conveniences, many of which have only recently been developed. Cooperating in this enterprise are eighty-three Buffalo firms.

This project stands out as just one more effort which is making the general public conscious of automatic heating and air conditioning and its possibilities for the improvement of their health and comfort in homes.

The home is Georgian in style throughout. The framework of the building is of expanded steel.

Fig. 1—The view above shows the dining room. Note the grille in the upper left hand corner. The very modern features of this new demonstration home provide an appropriate setting for the modern air conditioning equipment installed

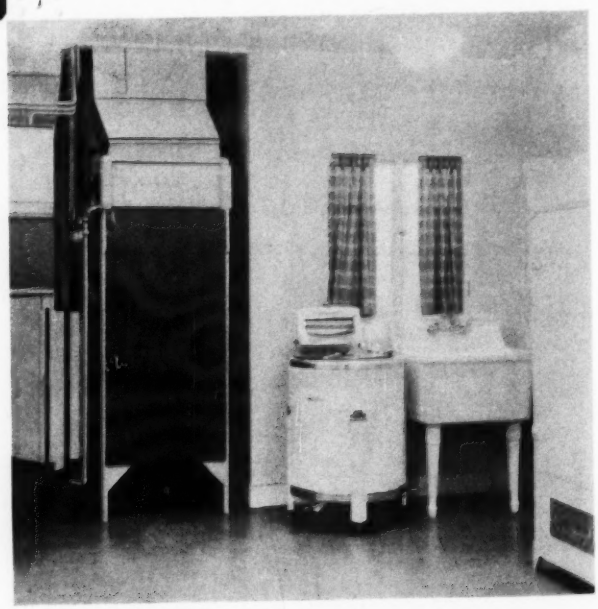


Fig. 2—Below is a view of the air conditioning equipment installed in the basement room. In keeping with this is the strictly modern laundry equipment, all of which go to establish the desire for new developments with the consequent larger market for air conditioning

Fig. 3—The air conditioned bedroom is shown in the illustration above. Here the grille is in evidence to the right of the dressing table. Those in charge of the exhibit state that this room perhaps produces the greatest amount of comment on the part of visitors

In addition to the illuminated key hole and street number, the doorway of the modern home is equipped with two luminous panels, one on either side of the entrance, which automatically switch on when the visitor steps on the welcome mat. The vestibule, instead of being simply a place to leave overshoes and umbrellas, has been made an artistic adjunct to the modern home by the use of illuminated wall niches, each holding a bit of statuary or a vase which is lighted from within.

The living room is modern without being modernistic. The furniture looks and is comfortable. The rug extending from wall to wall is soft and luxuriant. The two built in air conditioning units assure clean, healthful air all year round and the lighting for parties and general illumination comes from a ceiling cove all around the room, some wall lamps, a desk light and three-way floor lamps which provide every degree of intensity in illumination required.

Of all the rooms in the electric home the bedroom is perhaps the one that produces the most comment, both for its decorative effects as well as for its practical arrangements. One of the features includes a little button in the bedroom of the home which closes the window against the wintry blasts. Another touch of the button and the light is on.

One striking feature of the dining room is the beautifully grained wood paneling, which, by the way, is really plaster board with wood graining on its surface. Grilles for the air conditioning outlets have been worked into the walls so as to be both decorative and practical. Another feature consists of the luminous panels and a modern center fixture which serve a dual purpose for the man who wants to see

Fig. 4—One corner of the living room is pictured below. One of the two built-in air conditioning units serving this room is shown behind the easy chair, beneath the book shelf. In addition to the visitor receiving the impression of modernity from the furnishings and the condition of the air, he obtains it from the lighting arrangement

what he is eating and the woman who prefers soft shaded light. And just as we have jewelry to match our dress so may we change the lighting decoration of the dining room to suit our whims. A row of lamp bulbs has been set in a series of concealed boxes. Each box is covered with a stenciled design. The light shining through decorates the ceiling in pleasing patterns and the designs may be changed at will.

The kitchen is full of labor-saving devices—automatic range, refrigerator, dishwasher and mixer, to mention a few of the more common ones, together with the usual assortment of cookers, waffle irons, chafing dishes, toaster and percolator. There is even a radio to provide entertainment while all these modern appliances are doing the work. Luminous panel lighting over the sink is used in preventing shadows and speeding up dishwashing, and a simple arrangement or an ordinary bracket type fixture is installed to the under side of the cupboard and a similar arrangement inside which gives light where it is needed.

A Central Hospital Air

Earlier articles of this series mainly, air conditioning by article tells what is in-

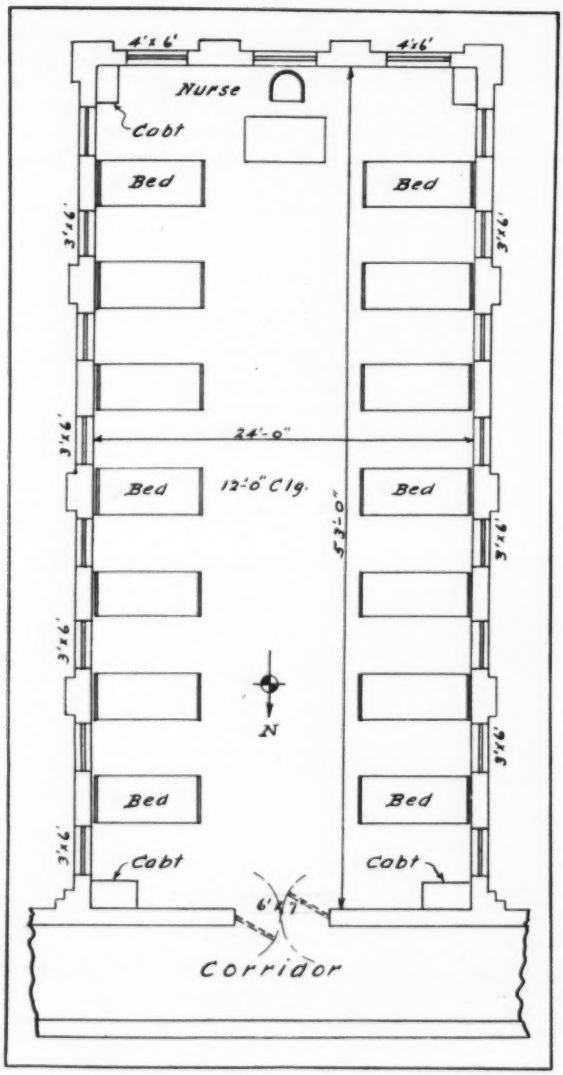


Fig. 1—Lay-out of a ward in a hospital to be conditioned

THE reader has now progressed to a point where the design of central air conditioning systems may be considered. In these systems, a very accurate control of conditions in the room is possible. The ideal central system will obtain and maintain a given standard of temperature and humidity within a room regardless of the outside temperature variation and the shifting of the occupancy from 100 per cent to zero. For example, in a theater the conditions must be maintained whether the audience is large or small and whether the outside conditions are hot or cold.

It is possible to do this only by varying the temperature of the air supplied and the humidity content so that, *after picking up the heat to be removed and the moisture generated in the room,* the air will have the temperature and relative humidity desired. In other words, it is necessary to anticipate the amount of heat and moisture added in the room and to insert the supply air with a *deficiency of the same amount of heat and moisture,* so that it will have the proper temperature and humidity when, and after, the room heat and moisture are added.

Suppose, for example, that a certain amount of heat is to be removed from a room. If the air enters 15 deg. Fahr. below the room temperature, each pound of air will absorb

1 lb. × 15 deg. Fahr. × 0.24 or 3.6 Btu.

as 0.24 is the specific heat of air per pound, or the heat required to raise one pound of air 1 deg. Fahr. On the other hand, if the air is inserted at 10 degrees below the room temperature, one pound of air will absorb

1 lb. × 10 deg. Fahr. × 0.24 or 2.4 Btu.

and as there are 13.34 cu. ft. to a pound of air at 70 deg. Fahr. this means that the cubic feet to remove a Btu. will be

13.34 / 3.6 or almost 4 cu. ft. for a 15 degree rise or
13.34 / 2.4 or almost 6 cu. ft. for a 10 degree rise.

The quantity of air then may be determined either by dividing the Btu. to be removed by 3.6 Btu. to obtain the *pounds* of air 15 degrees below the room temperature or by multiplying the Btu. to be removed by 4 to obtain the number of *cubic feet* required for the same 15 degree rise. Both of these are per hour if the Btu. to be removed are per hour. Similarly with air 10 degrees below the room temperature, the quantity in pounds may be obtained by dividing the Btu. to be removed by 2.4 Btu. to get *pounds* of air per hour, or multiplying the Btu. to be removed by 6 to get *cubic feet* of air per hour.

Having arrived at the number of pounds (or cubic feet) required to take care of the heat, the absolute humidity of the entering air may be obtained by taking the absolute humidity desired in the air in the room and subtracting from this the amount of moisture added per pound (or per cubic foot) in the room.

System for Conditioning

by Harold Alt, considered means of room units. This volved in central systems

This is demonstrated in the following: assume a room requires 2,000 lb. of air 15 degrees below the room temperature for the purpose of heat removal and that the amount of moisture added in the room is 3 lb. per hour. Here, 3 lb. × 7,000 grains equals 21,000 grains and this divided by the 2,000 lb. of air shows that each pound of air will have added to it

21,000 grs. / 2,000 lb. of air or 10.5 grs.

So the air entering the room not only must have 15 degrees less temperature than that desired in the room but it also must have a moisture content of 10.5 grains less than that desired in the air in the room in order that, *after picking up 15 degrees in temperature and 10.5 grains in moisture,* it will have the temperature and absolute humidity desired in the room.

The control of the amount of humidity in the air entering the room, when an ordinary air washer is used, simply is a function of the temperature to which the air is reduced in the washer. For example; a room in which it is desired to maintain 80 deg. Fahr. with 50 per cent relative humidity, and where air entering 15 degrees below the room temperature is to be used, will have an entering air temperature of

80 deg. Fahr. — 15 degrees or 65 deg. Fahr.

and the absolute humidity in the room should be as indicated in the following:

155.8 grs. × 50 per cent or 77.9 grs. per pound.

If, for instance, 10.5 grains per pound are added in the room, then the absolute humidity of the air leaving the washer must be

77.9 grs. — 10.5 grs. or 67.4 grs.,

and this will be found in psychrometric tables to fall at about 52 or 53 deg. Fahr. for saturated air such as the washer supplies.

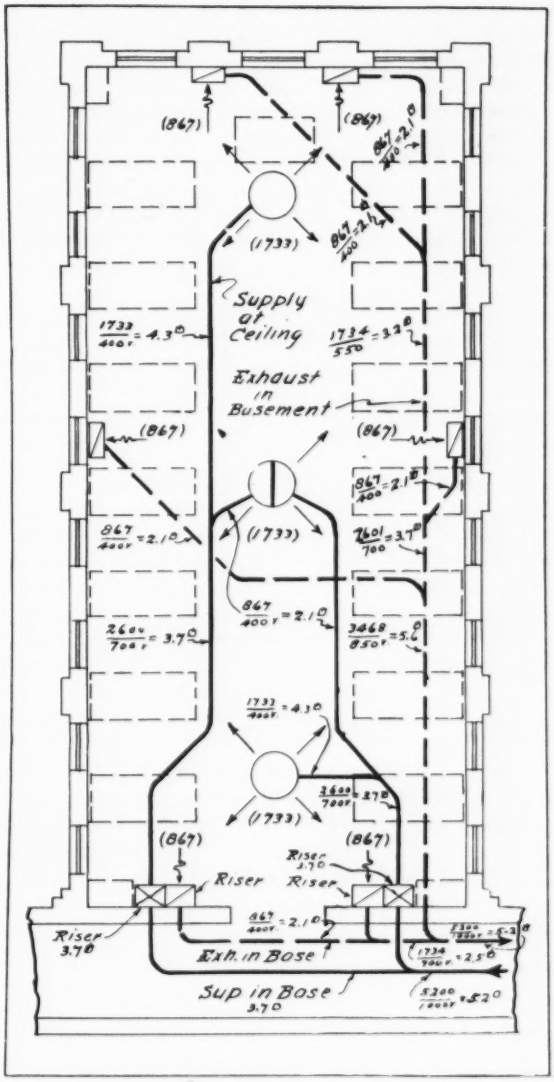


Fig. 2—How conditioning could be installed in hospital ward

This means that, if the air in the washer is reduced to around 52 to 53 deg. Fahr. the number of grains per pound will be 64.7 and that when the air picks up 10.5 grains in the room the total moisture in the room air will be

67.4 grs. plus 10.5 grs. or 77.9 grs., the absolute humidity desired. Similarly, when it picks up 15 degrees in the room in temperature with an entering temperature of 65 deg. Fahr. it will have reached the desired room temperature of 80 deg. Fahr.

The reader will note a discrepancy between the temperature of 52 to 53 deg. Fahr. (to which the air must be reduced in the washer in order to dehumidify it to a proper point) and the temperature of 65 deg. Fahr. at which the air must enter the room. The temperature of the air leaving the washer cannot be raised (and still

have performed the proper and desired amount of dehumidifying) while the temperature of the air entering the room cannot be lowered without causing the danger of cold draughts; in fact, unless very good distribution is possible, it would be better to use air 10 degrees below the room temperature to avoid this undesirable feature as much as possible.

So it becomes necessary to raise the air from the temperature at which it leaves the dehumidifier up to the temperature at which it is to enter the room. The simplest way to do this is by turning steam into the reheater so as to add approximately 13 degrees to the air and to bring it up to the 65 deg. Fahr. necessary. Another more economical method is to turn part of the recirculated air (which comes back from the room at 80 deg. Fahr.) into the air delivered by the washer so as to raise the temperature of the mixture to 65 deg. Fahr.

VARIETY OF OUTSIDE CONDITIONS NOTED

While practically all of the cooling calculations made in this discussion are based on a maximum temperature outside of 95 deg. Fahr. with about 50 per cent relative humidity, the matter of there being lesser outside conditions to be met must not be overlooked. The average summer temperature is nowhere near 95 deg. Fahr. and, in fact, the major portion of the cooling season is considerably below this maximum assumed outside condition.

When the outside conditions are not at the extreme, it is not necessary to carry the building as much below the outside temperature as the 10 or 15 degrees assumed for the peak. There is offered in Table 1 a suggestion as to the conditions to be maintained inside the building for certain outside temperatures and on looking over this table it will be seen that the inside conditions start at 68 degrees *effective* temperature with 70 deg. Fahr. outside, and go up 1 degree *effective* temperature inside for each 5 degree rise in the dry bulb temperature outside.

As the air passes from the apparatus to the room a certain amount of heat is picked up while passing through spaces in which the surrounding air is warmer than the cooled air in the duct. With a well insulated duct this pickup usually is in the neighborhood of 3 or 4 degrees and this is allowed for in the 10 per cent contingency allowance usually made in air conditioning calculations.

The amount of heat generated by the occupants of a room and all other heat transmitted into, or generated in, the room must be considered under the heading of "sensible heat" and must be removed by the air. The information in Table 2 shows some of the common sources of heat generation and may be of help in determining the amount of heat to be allowed for such equipment.

PROBLEM

In the case of the hospital ward shown in Fig. 1, it is desired to install an air conditioning system with summer cooling. If the walls are 12 in. brick with a furred space, metal lath and plaster with a coefficient of 0.25, the ceiling a 4 in. concrete slab with a terrazzo floor above and a hung ceiling of metal lath below with a coefficient of 0.36 and the floor is of similar construction but without the hung ceiling below with a coefficient of 0.61, what would be one method of solving the question? Assume that the ward is on the ground floor with a basement below and another ward on the next floor above.

SOLUTION

In air conditioning or ventilating work of any sort in hospitals two items assume great importance. First, not to arrange the system so as to permit the spread of contagious germs either when the system is *operating* or when it is *closed down* and, second, to have no audible noise from the system which would annoy a sick person. It would be impossible, of course, to place patients in the same ward who would be dangerous to one another as far as contagion is concerned so that the ward may be conditioned as a whole without fear on that score but it should be impossible for the air to mix with the air in any other room or portion of the building.

The conditions assumed for the ward can be any that the doctors may desire but in this case it will be assumed that the usual 80 deg. Fahr. and 50 per cent relative humidity will be maintained, when conditions outside are at a maximum.

The inward transmission of heat through the walls, glass, ceiling and floor then becomes:

AREAS

North Wall	
Gross Wall, 25 × 12	300 sq. ft.
Door, 6 × 7	42 sq. ft.
Net Wall	258 sq. ft.
East Wall	
Gross Wall, 54 × 12	648 sq. ft.
8 Windows, 3 × 6	144 sq. ft.
Net Wall	504 sq. ft.
West Wall	
Gross Wall, 54 × 12	648 sq. ft.
8 Windows, 3 × 6	144 sq. ft.
Net Wall	504 sq. ft.
South Wall	
Gross Wall, 25 × 12	300 sq. ft.
3 Windows, 4 × 6	72 sq. ft.
Net Wall	228 sq. ft.
Ceiling, 24 × 53	1,272 sq. ft.
Floor, 24 × 53	1,272 sq. ft.

This covers the areas which will transmit heat into the room on the *six* sides of the room. The Btu. transmitted by these areas will be:

HEAT TRANSMITTED

North Wall		
Wall, 258 × 0.25 × 15 degrees or	968 Btu.	
Glass, 42 × 1.1 × 15 degrees or	693 Btu.	
		1,661 Btu.
East Wall		
Wall, 504 × 0.25 × 15 degrees	1,890 Btu.	
Glass, 144 × 1.1 × 15 degrees	2,376 Btu.	
		4,266 Btu.
West Wall		
Wall, 504 × 0.25 × 15 degrees	1,890 Btu.	
Glass, 144 × 1.1 × 15 degrees	2,376 Btu.	
		4,266 Btu.

(Continued on Page 112)

TROUBLE

Another difficulty was solved by the trouble-shooting Mr. Fletcher because of his ability to understand electricity as well as heating

I CALLED on Mr. Peter Ross, heating and plumbing contractor of Wyanet, Ohio. While we were visiting in his shop, a call came from the White Washing Machine Co., complaining that the floor type heater which Mr. Ross had installed in their shipping room recently, did not seem to be large enough to heat it. This report puzzled me because, as I recalled the job, that heater was large enough to heat their shipping

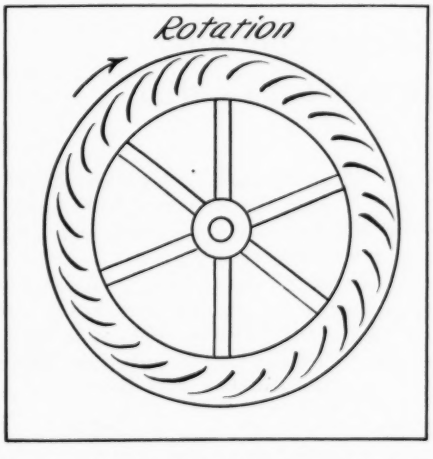


Fig. 1—This diagram shows the essential features of a fan blade having forward curves

room in —10 deg. Fahr. weather, and it was only + 10 deg. Fahr. at that time. Mr. Ross and I drove over to the White plant.

As we approached the heater, I noticed that it seemed to be making an unusual amount of noise and that the noise seemed out of the ordinary. The piping connections, at which I glanced, seemed to be made properly. The trap I found to be piping hot, so I started to look for trouble other than poor steam circulation. Holding my hand in front of one of the discharge elbows, I noticed that the air speed seemed unusually low. Just then the plant electrician came up and told us that the three-phase motor on this unit had been giving him considerable trouble. He had installed thermal cutouts of the proper size, but they blew out very soon after the motor was started. He installed longer cutouts but now the motor was running hot.

This information caused me to suspect that the motor was running backwards. Inasmuch as it is difficult to tell which direction a motor is running when it is operating at full speed I stopped the motor. As it slowed down I could easily see that it was running backwards and I told this to the electrician, who looked surprised and a little foolish, too, I thought. He explained that the motor ran in the other direction at first, but he had reversed it because he was convinced after looking at the fan blades that the fans were running in the wrong direction.

By means of a couple of sketches (one of a forward curved blade fan, Fig. 1, and one of a backward curved blade fan, Fig. 2) I explained that a forward curved

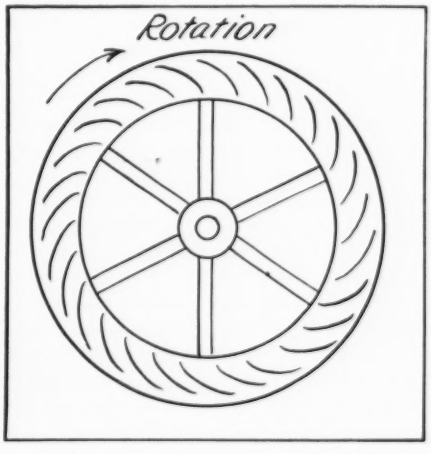


Fig. 2—Here is a backward curved fan blade as contrasted with the one shown in Fig. 1

blade fan sweeps the air out of the housing. For this reason, the blades are designed to run so they will have this sweeping action. A backward curved blade fan is designed, I told him, to cup up or pick up the air and throw it out of the housing, and the blades must run so they will have this cupping action. When I opened the heater, I showed him that this heater has backward

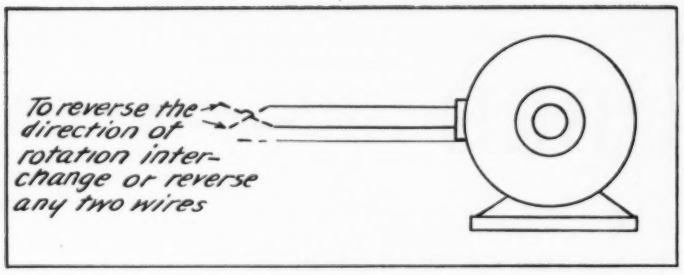


Fig. 3—The rotation of the motor was changed by interchanging two of the motor wires, as indicated in the diagrammatic sketch which is shown at left

curved blades and should run in the opposite direction. Every other fan he had ever worked with had forward curved blades, so it was only natural that he should make the mistake of assuming that this fan was the same as the others he had encountered.

In a short time he reversed the motor by interchanging two of the three wires. At the same time he reinstalled the smaller thermal cutouts. When we started the motor, it sounded right and the air delivery was almost double the former amount. Within an hour the room was up to temperature.

Respectfully submitted,

A. J. Fletcher.

EXPLANATION

Two wires of the three-phase motor were interchanged to cause the motor to run backwards

Until a few years ago practically all fans were of the forward curved blade type, as shown in Fig. 2. Recently more and more backward curved blade fans, as shown in Fig. 1, are being used. Their increasing use is due to the fact that for the same air delivery they run faster, permitting the use of high speed and less expensive motors. Also they make less noise than the older type. However, if a fan of either type is run backwards, it will overload the motor and deliver less than one-half of its proper air capacity. The mistake which this electrician made is a very common one and should be carefully guarded against.

His error was caused principally by his failure to understand the difference between the two types of fans. It was also due to the fact that with a three-phase motor it is impossible to predict which direction it will run in when it is first connected. Knowing this, he realized it was up to him to select the direction of rotation, so he reversed it by interchanging two wires, as shown in Fig. 3.

It is quite likely that this mistake would not have occurred if a single-phase motor had been used, for it has only two wires and will always run in the same direction, which is determined at the factory. Even if the electrician had questioned the direction of rotation of a single-phase motor, he would have found it very difficult to change.

When three-phase motors are used, the direction of rotation should be checked periodically, whenever a fuse is blown, and whenever the motor seems to be running hot. This checking is advisable because it is

(Continued on Page 117)

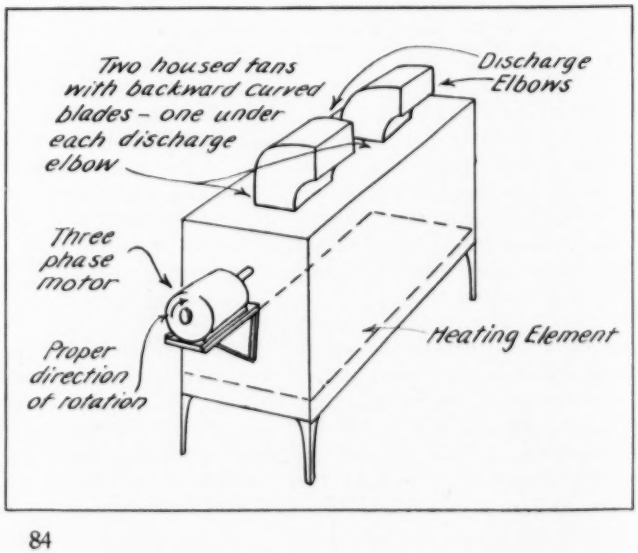

Two housed fans with backward curved blades - one under each discharge elbow
Discharge Elbows
Three phase motor
Heating Element
Proper direction of rotation

Fig. 4—"These heaters had three-phase motors and were supplied with current from a small transformer which drew its current from a larger transformer in the shop"

Research Gives Practical Data on Room Cooling

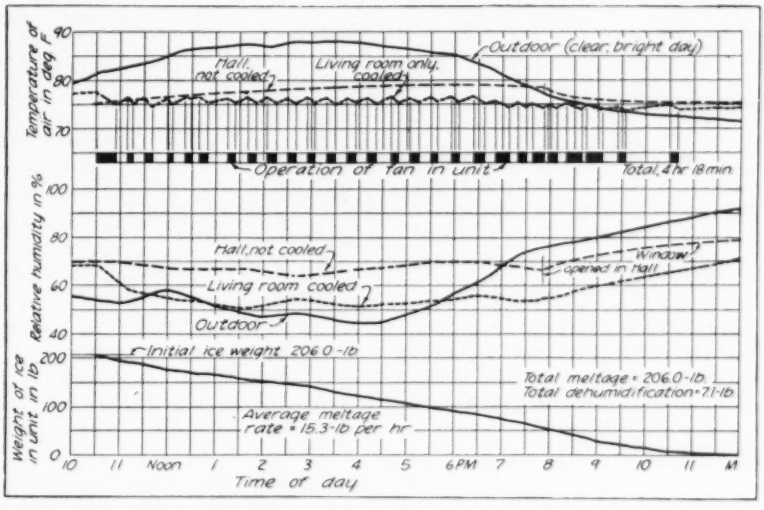

Temperature of air in deg F
Relative humidity in %
Weight of ice in unit, in lb
Hall, not cooled
Living room only, cooled
Outdoor (clear, bright day)
Operation of fan in unit
Total, 4 hr 18 min
Hall, not cooled
Living room cooled
Outdoor
Window opened in Hall
Initial ice weight, 206.0 lb
Total meltage = 206.0 lb.
Total dehumidification = 71 lb.
Average meltage rate = 15.3 lb per hr
Time of day

Fig. 1—Chart of temperature and humidity data for test with room cooling Unit A

The conclusions which are listed in this article should be of special value to those now selling air conditioning

By A. P. Kratz, M. K. Fahnestock, and S. Konzo

PART 2

THE first part of this article, published in the last issue, considered the purpose of tests, the procedure followed in making them and some of the results obtained. This second half of the report goes on to discuss more of the results and summarizes the conclusions which were reached.

The average rate of ice meltage, as indicated by the lower curve in Fig. 5, was approximately 15.3 lb. per hour for a period of 13.5 hours. The maximum meltage rate observed with the fan operating continuously was 43.8 lb. per hour, with a room temperature of about 75 deg. Fahr.

The values of heat absorption may be reduced to an equivalent ice melting capacity expressed as tons of refrigeration by dividing the heat absorption rate in Btu. per hour by 12,000. Therefore, for the test shown in Fig. 5, the total heat absorption of 34,814 Btu. for the 13.5 hour period was equivalent to 0.215 tons of refrigeration. The summary of results from six tests is presented in Fig. 1 and it may be noted from the lower curve that the ice melting capacity expressed in tons of refrigeration varied from a value of 0.51 tons with continuous fan operation to a value of 0.06 tons when the fan in the unit was not running.

Performance of Unit Cooler B: The performance of unit cooler *B* was similar to that of unit *A*. However, it was possible to obtain a wider variation in cooling rates with unit *B* by making adjustments in the rate of circulation of the cooling water, by changing the speed of the fan or by allowing the fan to run a larger proportion of the time. In the tests reported in this paper the rate of circulation of the cooling water and the fan speed remained constant. The amount of cooling depended entirely upon the length of time that the fan in the unit was operated. It was found, approximately

This paper is the result of research conducted at the University of Illinois in cooperation with the A. S. H. and V. E. Research Laboratory and the National Warm Air Heating and Air Conditioning Association.

Presented at the 41st Annual Meeting of the American Society of Heating and Ventilating Engineers, Buffalo, N. Y., January, 1935.

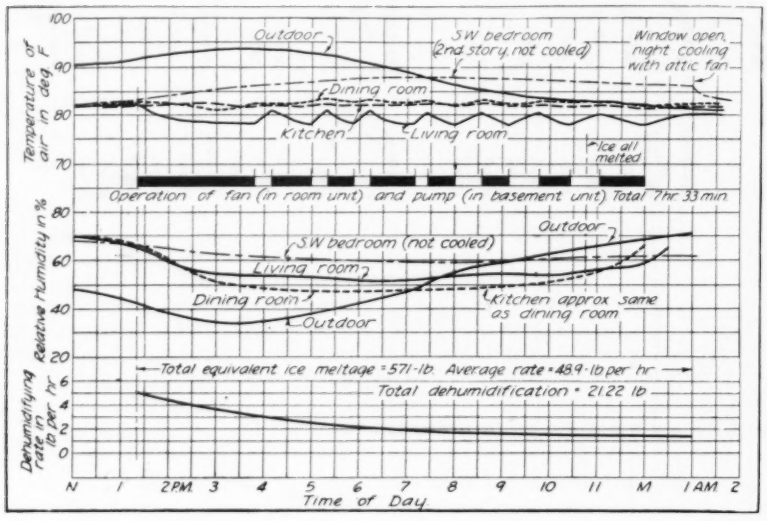

Temperature of air in deg. F
Outdoor
SW bedroom (2nd story, not cooled)
Window open, night cooling with attic fan
Dining room
Kitchen
Living room
Ice all melted
Operation of fan (in room unit) and pump (in basement unit) Total 7hr 33 min
Relative Humidity in %
Outdoor
SW bedroom (not cooled)
Living room
Dining room
Kitchen approx. same as dining room
Outdoor
Total equivalent ice meltage = 571 lb. Average rate = 489 lb per hr
Total dehumidification = 2122 lb
Dehumidifying rate in lb per hr
N 1 2PM 3 4 5 6 7 8 9 10 11 M 1AM 2
Time of Day

Fig. 2—This shows a typical performance curve with the unit located in the living room, as indicated in Fig. 3. Here it cools the entire first story

one minute after the fan started or stopped the temperature of the water leaving the cooling coils had practically reached equilibrium. For the test shown, the temperature of the water entering and leaving the coils was approximately 34 deg. Fahr. and 40 deg. Fahr. respectively, giving a temperature rise of about 6 degrees through the coils.

Fig. 2 shows a typical performance curve with the unit located in the living room as shown in Fig. 3, and cooling the entire first story consisting of the living room, hall, dining room, breakfast nook and kitchen; or a total volume of 7,300 cu. ft. It may be noted that the outdoor temperature reached a maximum value of 93.7 deg. Fahr. at about 3:30 p. m. and that the temperature in the southwest bedroom on the uncooled second floor, attained a maximum value of 87.5 deg. Fahr. at about 7:30 p. m. During the test period of 11.67 hours it was possible to maintain average breathing level temperatures of 79.3 deg. Fahr. in the living room, 81.5 deg. Fahr. in the hall, 82.6 deg. Fahr. in the dining room, and 82.1 deg. Fahr. in the kitchen, or an average of 81.4 deg. Fahr. for the entire first story. Although the cooling unit and control thermostat were unfavorably located with respect to the center of the first story, the air temperatures in any one room did not deviate more than 2.1 degrees from the mean temperature for the entire first story. The minimum room temperature of 79.3 deg. Fahr. occurred in the living room where the cooling unit was located, while the maximum room temperature of 82.6 deg. Fahr. occurred in the dining room. Unquestionably, this variation in air temperature between rooms would have been reduced by a more central location of the thermostat and unit. It is also probable that, from the standpoint of temperature equalization in several rooms, the best method of operation for a unit room cooler of this type is that which will allow the unit to operate for the greatest portion of the time, at a rate of cool air delivery just sufficient to balance the heat load. With such a unit equipped with a multiple speed fan this method of operation can be most closely approximated by running the fan at the lowest available speed which will handle the load; whereas, in a single speed fan unit the adjustment could be made either by employing adjustable louvers to the amount of air delivered, or by using a control valve to vary the rate of water being circulated through the cooling coils.

The total ice meltage for the test shown in Fig. 2 was 500 lb. and the total amount of heat absorbed was 82,224 Btu. which included the net rise in the sensible heat of the water in the ice tank.

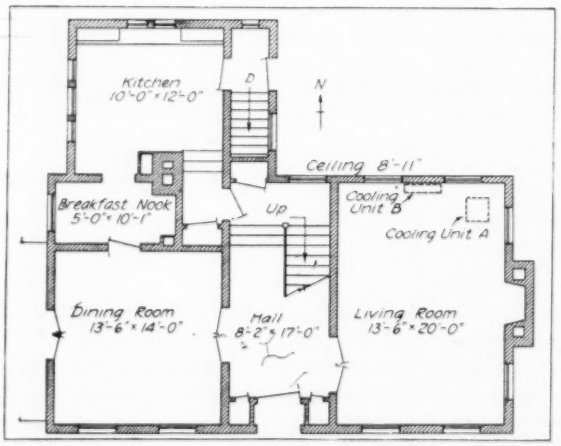


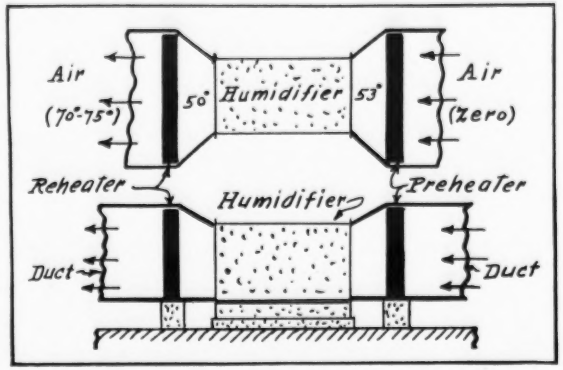
Fig. 3—Here is the first floor plan of the research residence

The average rate of heat absorption reduced to an equivalent ice melting capacity and expressed as tons of refrigeration was 0.59 tons. In general, the tests with both units *A* and *B* on the first story indicated that a cooling unit with a capacity of approximately 0.25 ton of refrigeration per room would be required to handle the maximum cooling requirements of rooms similar to those in which these tests were made, and in which no outdoor air other than that which occurs by natural infiltration was introduced for the purpose of ventilation. It should be noted that the windows of these rooms which were exposed to the sun were equipped with awnings, and that the occupancy load consisted of only one person per room. There was practically no power load. The estimate of 0.25 ton of refrigeration per room is based on normal running conditions, since starting conditions impose an extra load of considerable magnitude. It is very probable that a larger tonnage capacity per room would be necessary on second story rooms since the cooling load for

(Continued on Page 115)

10—
Air Heaters

The common method used to heat air when a humidifier is installed is shown below:—



Air, passing through the preheater, is raised to about 4 degrees higher than the saturated temp. desired at the humidifier outlet, drops about 3 degrees to 5 degrees in passing through the water spray, and emerges saturated at about 50 deg. Fahr. The air is then heated up to 70 deg. Fahr. or 75 deg. Fahr., by the reheater and is taken by the fan and is delivered to the building through the duct system.

Note . . . Air saturated at 50 deg. Fahr., will have 50 per cent R. H., when raised to 70 deg. Fahr.

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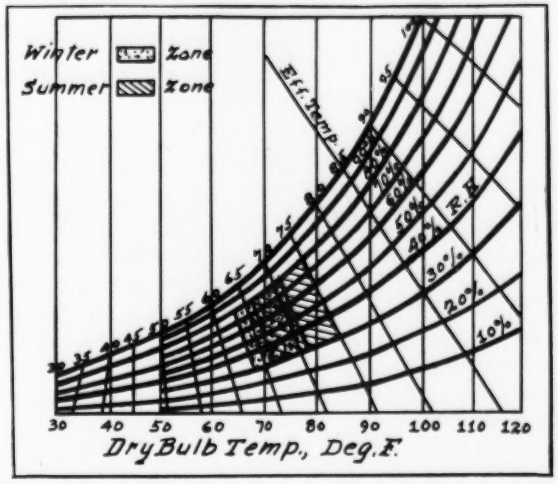
11—
Effect. Temp. and Comfort Zone

Chart shown below is for *still air* and for persons *normally clothed.* It is the result of elaborate tests at the Bureau of Mines made in collaboration with the A. S. H. V. E. and is for *winter conditions in comfort zone.*



Note . . . The winter comfort zone extends from 63 degrees to 71 degrees eff. temp., with the comfort line at 60 degrees e. t. Any set of conditions falling within this zone will satisfy at least 50 per cent of people and any set falling on comfort line satisfies 97 per cent.

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These four tables carry on the series which was started in the January issue. The information has been developed so as to be similar to that which the reader might gather in the form of notes while studying complete articles and text books on the subject of air conditioning.

9—
Problems in Effect. Temp.

A room with 60 per cent R. H. should have what d. b. temp., to bring it within the winter comfort zone? On the winter comfort line?

Solution—

Chart (see No. 11) indicates that with 60 per cent R. H. the min. d. b. temp. is 68 deg. Fahr., and the max. is 74 deg. Fahr., in order to keep within the comfort zone; the comfort line (66 degree eff. temp.) crosses 60 per cent R. H. at 69 deg. Fahr. to 70 deg. Fahr. d. b. temp.

A room has a d. b. temp. of 80 degree and 70 per cent R. H. If the R. H. were reduced to 40 per cent what would be the drop in effective temp.?

Solution—

Chart (see No. 11) gives eff. temp. for 80 deg. Fahr.—70 per cent as 77 degrees and for 80 deg. Fahr.—40 per cent as 73 degrees. Drop=77 degrees—73 degrees=4 degrees e. t.

What is ideal winter d. b. temp. for 50 per cent R. H.?

Solution—

Chart (No. 11) shows comfort line and 50 per cent R. H. intersecting at 71 deg. Fahr., dry bulb temp.

Note . . . A 50 per cent R. H. is usually carried in humidified buildings, so 70 degrees —71 degrees is comfortable; with lower R. H. 72 degrees—74 degrees often is required for comfort.

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12—
Humidifier Performance

The ordinary humidifier has either one or two banks of sprays set 3′ 0″ apart and 3′ 0″ from eliminators. The eliminator plates should have a washing surface of not less than 16 sq. ft. per 1,000 c.f.m. With the flooding nozzles alone in operation there is no material increase in the air humidity. With flooding nozzles and one bank of sprays the air is cooled 70 per cent of the wet bulb depression while, with both banks of sprays it will be cooled 99 per cent of the w. b. depression.

If cooled water is supplied to both banks of sprays the temperature of the leaving air will be above that of the water less than 10 per cent of the difference between the temperature of the entering air and the water. In such cases moisture actually is removed from the air and the apparatus is termed a "dehumidifier."

Example—

A dehumidifier uses well water at 50 deg. Fahr., and incoming air is 80 deg. Fahr. What is leaving temp.?

Solution—

80°—50°=30° diff. 30°×10%=3° above Water temp. = 50°; 50° + 3° = 53° (minus)

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Automatic Heat and Air Conditioning Questions

DELIVERY TEMPERATURE OF FUEL OIL

To the Editor:

What effect has the delivery temperature on the quantity of fuel oil received from a fuel oil truck? I am connected with a hotel in Chicago and we use No. 5 oil. In order to make the oil flow satisfactorily it is delivered into our tank at 130 deg. Fahr. The tank is rated to hold 2,060 gallons of oil at 70 deg. Fahr., and the oil company fills up our tank and bills us for 2,060 gallons. We want to know how much oil we have in this tank when it cools off to 70 deg. Fahr., the temperature at which our tank was rated.

We understand that the Board of Education in Chicago will not permit oil to be delivered on a bulk basis, but requires that it be weighed. We plan to renew our contract in March and we want to know if it will be worth our while to make arrangements at a local weighing scale and require, in the new contract, that our oil be delivered on a weight basis. O. J. F.

Chicago.

To the Reader:

In the matter of the difference in the volume of oil made by heating it to 130 deg. Fahr. at the time of delivery as mentioned in this inquiry, we find that No. 5 oil usually runs about 24 degrees Baume and that the specific gravity based on 60 deg. Fahr. oil as unity decreases some 0.0035 at 70 deg. Fahr. and some 0.025 at 130 deg. Fahr. The reductions are based on an absolute specific gravity of oil at 60 deg. Fahr. of 7.58 lb. per gal. or 0.9091.

Consequently the specific gravity based on 60 deg. Fahr. oil as unity changes from a decrease of 0.025 at 130 deg. Fahr. to a decrease of 0.0035 at 70 deg. Fahr. or

$$\begin{array}{r} 0.025 \\ 0.0035 \\ \hline 0.0215 \end{array}$$

which is another way of saying that the oil at 130 deg. Fahr. weighs some 2 plus per cent less than it does at 70 deg. Fahr. As it would seem more or less impossible to measure oil delivered into the ordinary horizontal tank as closely as this, it would seem that, while the customer is suffering a loss by purchasing at the 130 deg. Fahr. temperature, he would be much better off in accepting a 2 per cent allowance on the quantity—if the oil company will make such an adjustment—than he would to go to any expense or trouble to have the oil weighed.

This information is garnered from the Guide of 1925-6 on p. 158 where the Baume readings for the six general grades of oil are given; from the National Pipe Standards Handbook of 1924, p. 463 where temperature correction factors are given for oil up to 120 deg. Fahr., these being based on Circular No. 57 of the Bureau of Standards Table 1; the correction factor for 130 deg. Fahr. has been obtained by adding to the factor for 120 deg. Fahr. the same differential as obtained between 110 deg. Fahr. and 120 deg. Fahr. which may be presumed to be approximate even if not strictly accurate.

ONE PIPE STEAM SYSTEM INSTALLED

To the Editor:

I have a job to install the piping for a party who has purchased an oil burning boiler and wish to use a one-pipe steam system with a wet return having two separate circuits. A sketch is enclosed showing floor plan and I would appreciate it if you could aid me

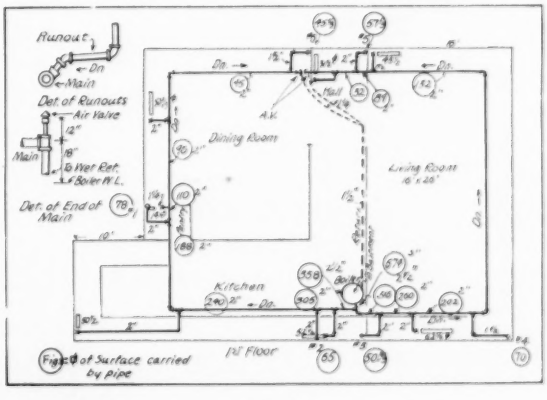


Fig. 1

in determining the size of piping for this job. Will you also locate and size the risers? This will be of real help to me in this work and I hope for an immediate reply.

New Jersey. D. D. A.

To the Reader:

The sketch referred to is shown in Fig. 1, and it will be noted the risers and mains are shown thereon and sized. In Fig. 2 we give a riser diagram so that there may be no misunderstanding about the pipe sizes

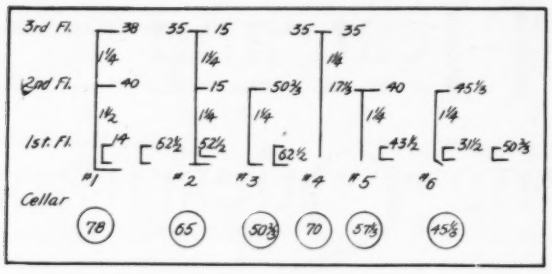


Fig. 2

for the risers. If our correspondent will install the system properly using the pipe sizes given we are sure he will have a good working job.

DIFFICULTY WITH VAPOR SYSTEM

To the Editor:

Enclosed is a sketch, Fig. 3, of a vapor system, with an automatic return trap, which I fixed last season and improved quite a bit. Now I am installing a new boiler and am trying to remedy the difficulty of having the system heat up very slowly in cold weather. In looking over the mains I saw a change that I think will improve the system in this respect without involving a great deal

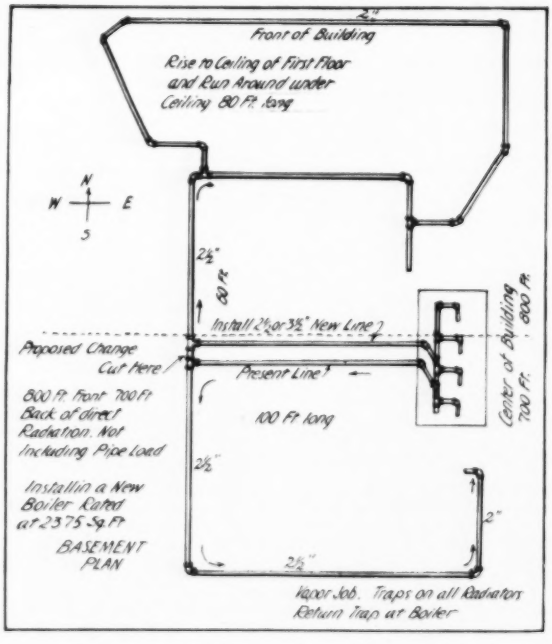

Front of Building
Rise to Ceiling of First Floor and Run Around under Ceiling 80 Ft. long
Install 2½ or 3½" New Line
Present Line
Proposed Change Cut Here
800 Ft. Front 700 Ft. Back of direct Radiation. Not Including Pipe Load
Install in a New Boiler Rated at 2375 Sq. Ft.
BASEMENT PLAN
100 Ft long
Center of Building 700 Ft.
Vapor Job. Traps on all Radiators Return Trap at Boiler

Fig. 3

of expense; this consists of dividing the main at the middle and running back to the boiler with two lines as indicated on the sketch. What does your heating engineer think of this?

Illinois. P. S.

To the Reader:

We are of the opinion that the addition of another supply line between the boiler and the general supply header such as you have shown in Fig. 3 will not do anything to overcome your trouble. The reason we say this is that the present pipe is amply sized even for a vapor system, a 3-in. line being able to carry 1,645 sq. ft., with a drop in pressure of only ⅛ lb. per 100 ft. of run which is the usual drop on which vapor piping is sized. Your sketch indicates a radiator load of 800 sq. ft. in the front portion and 700 sq. ft., in the rear portion which is a total of 1,500 sq. ft., and adding 25 percent for pipe losses brings the total load up to 1,500 plus 375 or 1,875 sq. ft., which is slightly above the pipe capacity at ⅛ lb. drop but nothing to worry about as

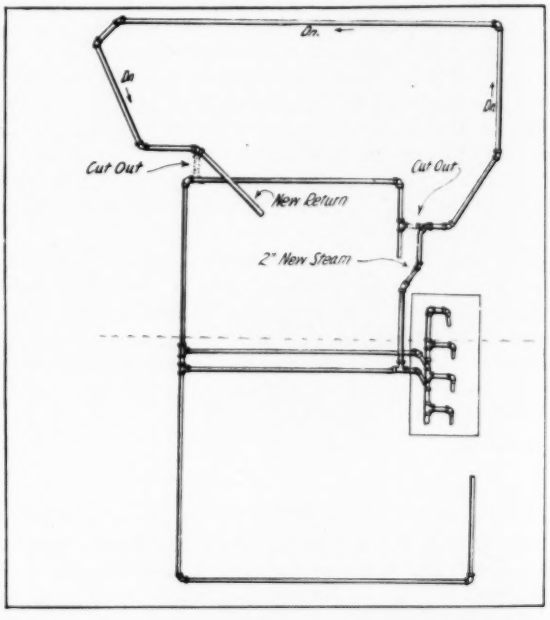
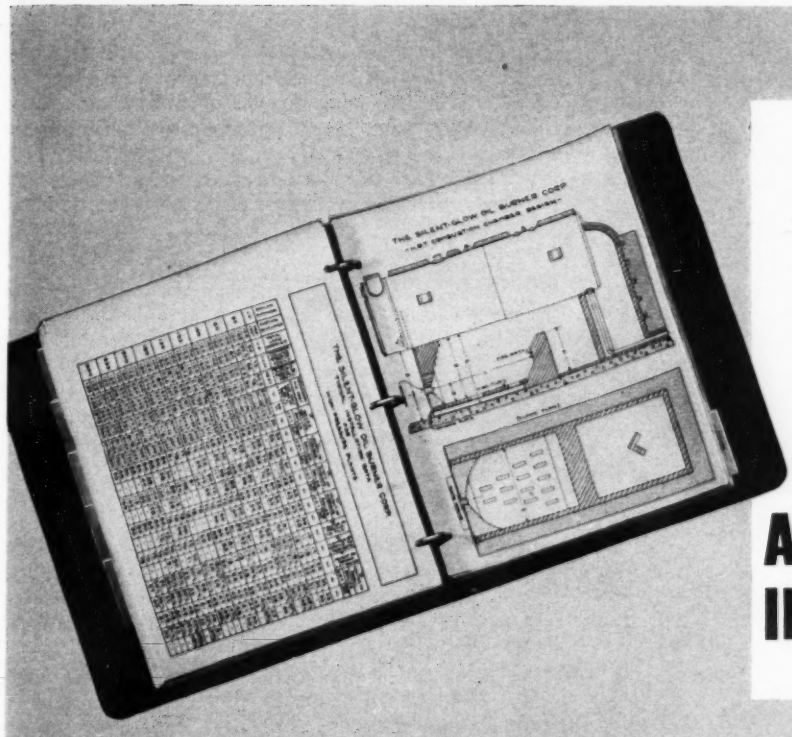


Fig. 4

the same 3-in. pipe at ¼ lb. drop is good for 2,326 sq. ft. As a result you will have a drop in the 3-in. line of just a trifle over ⅛ lb. per 100 ft.

Now, if this runout is big enough as it is, what happens when another 2½-in. runout is added? In this case you have no more steam generated by the boiler than before but you have a greater volume of air to drive out of the system before steam can be delivered to the radiators than you had before the 2½-in. line was added. This added volume of air is equal to the air contained in the 2½-in. pipe and would result in the steam having a greater amount of pipe volume in which to displace the air and a greater amount of pipe to warm than it has now.

While our reader does not say so in his letter, we are of the belief that the slowness in heating is most pronounced along the front of the building and that this branch could be speeded up by making a connection to the near end of the loop instead of to the far end so



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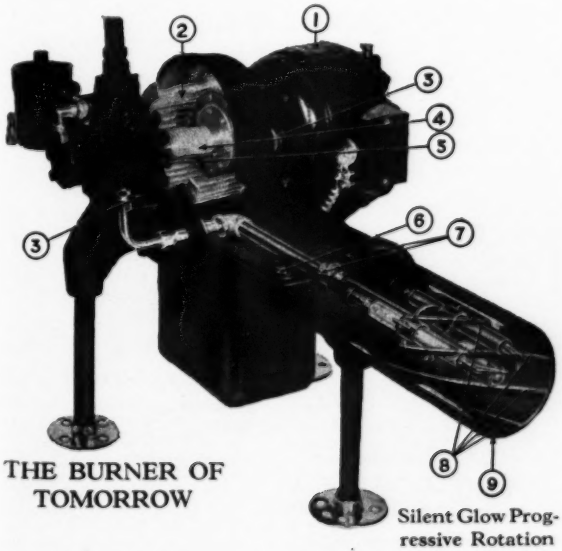

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that the steam travel to the far end of this loop would be more nearly equal to that obtained in the loop to the rear portion. See Fig. 4. This will mean, of course, regarding the loop along the front wall so as to drain in the other direction and we do not know how practical or impractical this suggestion may be in relation to the actual conditions to be met with on the job. If the whole installation is slow to heat, the cause may have been an undersized boiler or traps set too tightly to admit the ready relief of air.

If the trouble was with the boiler being too small the new boiler should do much to relieve the difficulty as with a rating of 2,375 sq. ft., it will be seen that it has sufficient capacity to handle all of the radiation and pipe losses plus about 25 per cent for heating up periods. Possibly this system has something wrong with the main air vent valve which does not permit the air to escape as fast as it might. We are sure that if our reader will check over the items mentioned and correct them, if required, he should have little difficulty after the new boiler is in operation. Usually there is no heating up period in a vapor system because, if the air is prevented from re-entering, the radiators will stay hot for long periods on simply the vapor produced by the self-induced vacuum formed by the condensing steam.

HOW TO CONNECT TWO BOILERS

To the Editor:

The writer would like your opinion on the following problem where a building has two steel firebox boilers either of which is big enough to carry the load, the "A"

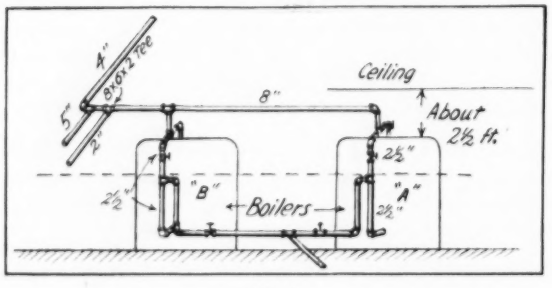

Fig. 5

boiler having a stoker and ordinarily being used to supply the building; the "B" boiler is hand-fired and is only an emergency boiler, in fact it never has been connected to the system up to the present time. Now it is desired to connect in the "B" boiler, the piping for "A" boiler being as shown in Fig. 8.

Fig. 5 shows how it has been proposed by the engineer to arrange the piping; due to the small space between the boiler and the ceiling we believe that the loop equalizer will have to be taken off flat as shown. We do not like this and have been considering another scheme without the Underwriters Loop as shown in Fig. 6. The best idea of all in our opinion is that shown in Fig. 7 where the loop is included and the check valves omitted, a single loop being employed for the two boilers.

Ohio. A. A. T.

To the Reader:

Our correspondent evidently does not agree with the engineer on the job and we don't agree with either so that leaves all of us ready to start off on the same basis. Now there are many ways to pipe up two boilers and a

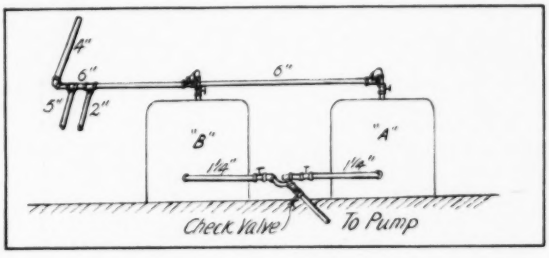

Fig. 6

lot of them will work; some will work most of the time and a few won't work at all. In piping boilers the first item that should be considered is safety, the second that of operation and the third simplicity and cheapness of the scheme.

Let us consider Fig. 5; this is against the Underwriters regulation which calls for the balancing pipe on the loop to be connected to the boiler steam pipe *on the boiler side of all stop valves* and without any valve in the balancing pipe itself. This is for the purpose of making

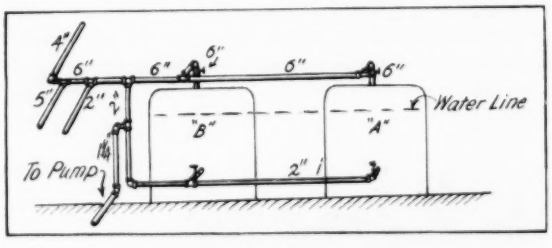

Fig. 7

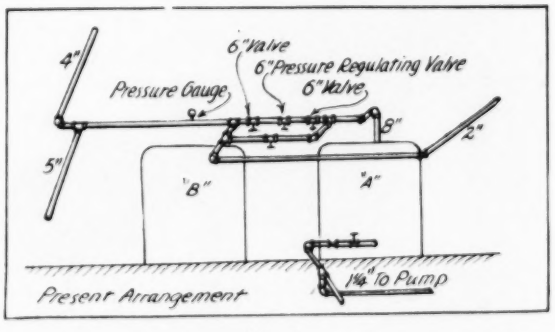

Fig. 8

it impossible for the operator to close off the balance pipe and thus destroy the action of the loop. Although this objection applies on both boilers, the scheme could be altered slightly as indicated in Fig. 9 and, when so changed, should be satisfactory.

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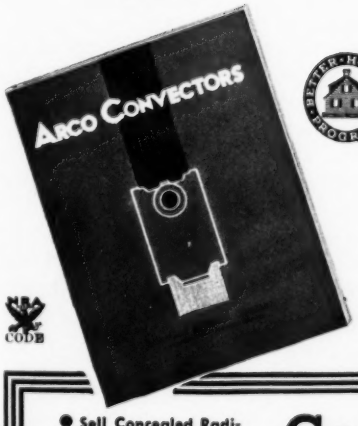

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On Fig. 6 there should be a check in each boiler return but not in the main return as without the boiler checks it is possible to raise steam in one boiler and drive all of the water out through the return and over into the other boiler if the stop valve on the second boiler

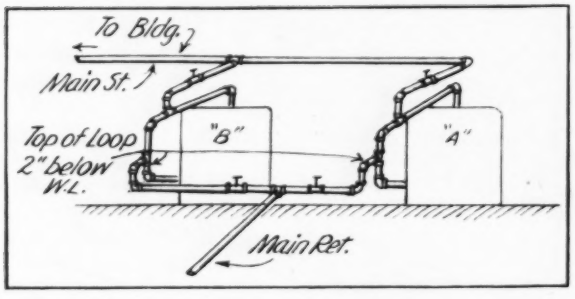

Fig. 9

accidentally should be left open when the steam valve is closed. The check valve on the main return should be changed to a stop valve and the checks should be between this stop valve and the boiler stop so that by closing two

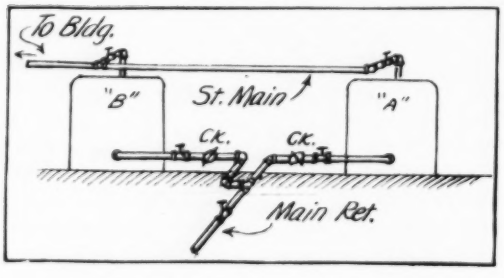

Fig. 10

of the valves each check may be opened and cleaned without draining the boiler or the return line. This is shown in Fig. 10, and when so arranged should give safe and satisfactory service.

Considering Fig. 7 which our correspondent feels is

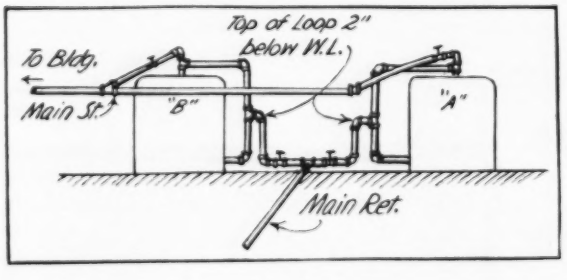

Fig. 11

the best solution, we find that it has the same weakness as Fig. 6, viz., that water can be forced out of one boiler and into the other if the return valve is left open and the steam valve is shut and—worse than this—there is only one loop to protect the two boilers and the balance pipe in this loop has a valve between the top of the loop and the boiler in each case. It is absolutely necessary to have a *loop to protect each boiler* and to have the balance pipe connected directly to the boiler runout *on the boiler which the loop is protecting.*

However, we agree with our correspondent that Fig. 7 is the most desirable arrangement when properly made up and this simply involves an additional loop and the balance pipe connected in the manner shown in Fig. 11.

OPERATION AT LOWER NIGHT TEMPERATURE

To the Editor:

A customer of mine has a six-room house heated with a closed hot water plant which is oil fired. He wants to know whether it is just as cheap for him to drop his temperature to 60 deg. Fahr. overnight from 10 p. m. to 6 a. m. or to maintain a temperature of 72 deg. Fahr. twenty-four hours a day. He also wants to know as to how much saving there would be if he dropped it to 68 deg. Fahr. at night.

Would you please give me the formula for estimating how much heat it would require for the above in Btu. and also in cost of oil. The above problem would consider a constant outside temperature of 30 deg. Fahr.

To the Reader:

In reply to your question in regard to the saving that would occur in the case of an oil fired heating job when the temperatures during the night are dropped to 60 deg. Fahr. instead of being kept at 70 deg. Fahr. we would advise that there undoubtedly would be some saving experienced by this procedure as a building at 60 deg. Fahr. will radiate less heat to the outside than a building at 70 deg. Fahr., assuming the same outside temperature in both cases.

The average winter temperature in your locality is around 36 deg. Fahr. and if the night temperature runs 10 degrees below the average while the day temperature runs about 10 degrees above the average you will have an average night temperature, for about 200 heating nights, of 26 deg. Fahr. If the house is kept at 70 deg. Fahr. all of the time the average degree days will be

$$(70 - 36) \times 200 \text{ or } 6{,}800$$

while if the house is cut down to 60 deg. Fahr. during 8 hours at night—or ⅓ of the time—the degree days will be

$(70 - 46) \times \frac{2}{3} \times 200$ or 3,200 for the 70 deg. Fahr. time and

$(60 - 26) \times \frac{1}{3} \times 200$ or 2,266 for the 60 deg. Fahr. time, making a total of 5,466

This seems to indicate that the heat loss from the house would be as 5,466 is to 6,800, or about 80 per cent as much when the temperature is reduced at night. Owing to the loss involved in bringing back the temperature in the morning we believe that a practical answer to your question is that you would save in the neighborhood of 10 per cent of the fuel by letting the temperature go down at night but we cannot promulgate any mathematical figures to back this up as the loss in bringing the house back to 70 deg. Fahr. temperature every morning is more or less problematical.

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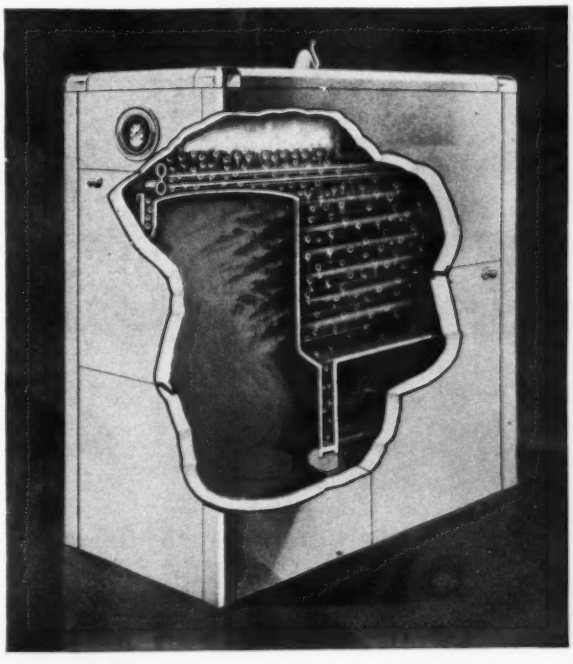

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California Tunnel to Have Notable Air Conditioning Plant

Work is now under way on a vehicular tunnel that will penetrate the hills back of Oakland, to provide a shorter, more direct route than is now afforded between certain northern California points and the east shore of the San Francisco Bay region. Successful operation of the new underground highway link—to be known as the Broadway Low Level Tunnel—will be largely due to the application of advanced principles of air conditioning. The present two-lane, high-level tunnel, built more than thirty years ago, is now inadequate; much shorter than the new bore, it depends on natural draft for ventilation.

The low level tunnel will be 3,168 ft. long and will actually consist of two bores that converge at both portals, each bore to accommodate two lanes of traffic, one eastbound, the other westbound. The roadways, proper, will measure 22 ft. wide, with a vertical clearance of 15 ft. 8 in., over which will be located, successively, the exhaust chamber and the fresh air chamber.

The transverse system of ventilation, as followed in the Holland and Posey tubes, has been adopted as most suitable for this tunnel, the longitudinal method creating such tremendous movements of air as actually to impede traffic.

Air conditioning for this job has been figured on the basis of a peak load of 1,200 vehicles per lane per hour, calling for a maximum of 1,500,000 cu. ft. of fresh air per minute. Pollution will be kept down to two parts of carbon monoxide in 10,000, which amounts to removing not only the hazard, but the "nuisance element" as well. Equipment has been included to provide for a system of CO recorders in each portal building for taking samples of air from either end; but the whole exhaust chamber area will be piped for a traverse survey of air pollution, whenever necessary, at certain points in either bore through the use of removable plugs at regular intervals.

Fig. 1—General construction view of the work

Four blowers and four exhausters in each portal building will work to a bulkhead about half way through the tunnel. Fresh air will be delivered into the upper plenum, thence through flues placed a little above the level of the roadway, at 12-foot centers, the flues having adjustable slides to regulate the airflow. Polluted air will be drawn out through slots in the roadway ceiling into the exhaust plenum, thence into the atmosphere.

Each portal building will serve its end of both bores. The structures measuring 44 ft. x 110 ft., in plan, will house four blowers and four exhausters. These will be equipped with saddle-vane fans and driven by variable speed motors.

For over two years a series of meteorological experiments were conducted to determine what amount of natural ventilation was present at the site. It developed that natural ventilation for a vehicular tunnel at this site would be undependable due to frequent reversals of draft, the studies also showing a period of variable duration when virtual calm prevailed at the site. The project will cost $3,683,931, and it will be completed in two years. M. C. Collins designed the air conditioning features and is in charge of their installation.

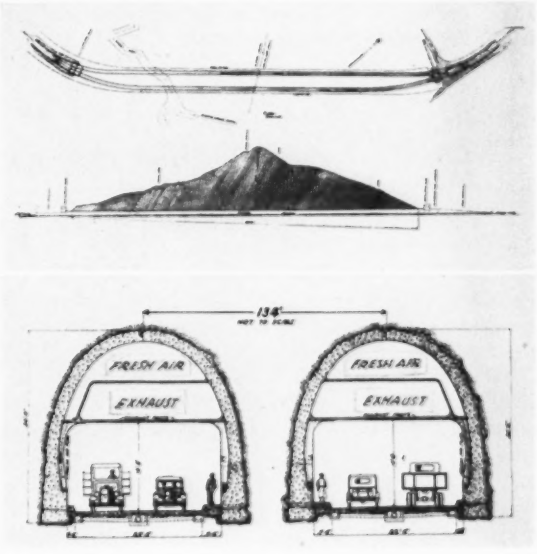


Fig. 2—These cross section diagrams indicate some of the details of the new Oakland tunnel project

The 1935 Edition of A. S. H. V. E. Guide Has Been Issued

The American Society of Heating and Ventilating Engineers, 51 Madison Avenue, New York City, has issued the 1935 edition of the A. S. H. V. E. Guide, containing a wealth of practical and authoritative information of vital interest to every man in the industry. This year a new section of problems in practice has been added, consisting of a group of questions and answers following the technical data in each chapter. This addition shows typical problems worked out according to information contained in the chapter. It also gives a check list of questions covering the material in the chapter and brings out in review the most important points. Chapters have been rewritten and brought up to date. A new psychrometric chart has been added. The heat transmission tables have been improved by the addition of more data and sketches. Entirely new chapters on unit air conditioners and pipe and fittings have been prepared. The chapters on air conditioning and refrigeration have been revised and strengthened. Many new illustrations have been added in the text of the various chapters. The Guide Publication Committee with the aid of 200 specialists have reviewed, checked and revised the material of each chapter, so that the technical data in the 41 chapters

covering all phases of heating and ventilating and air conditioning are practical and authoritative. This Committee consists of Walter L. Fleischer, chairman; John Howatt, Prof. G. L. Larson, Samuel R. Lewis, E. N. McDonnell, Prof. W. M. Lawdon, J. H. Walker and J. L. Blackshaw. The volume consists of more than 1,000 pages. It is bound in an attractive red cover, which is flexible. Its price is the same as in former years—$5, postpaid.

Willis H. Carrier Tells History of Air Conditioning

Willis H. Carrier, chairman, board of directors of the Carrier Engineering Corporation, Newark, N. J., spoke at the Andrew Jackson Hotel in Nashville, Tenn., February 18. A dinner was given in his honor by Buford Bros. of Nashville, distributors of air conditioning equipment in Middle and East Tennessee.

Mr. Carrier in his address traced the history of air conditioning and discussed various applications and uses on many businesses. He also addressed the engineering students at Vanderbilt University during the morning on the subject "Fundamental Problems of Air Conditioning and Basis Principles of Engineering." Fitzgerald Hall, newly elected president of the Nashville, Chattanooga and St. Louis R. R., spoke of the good effects of air conditioning and the results to railways from installing it. Fred Webber, owner of the B and W cafeterias, spoke of the use of air conditioning in restaurants. Brown Buford, executive vice president of Buford Bros., presided.

N. Y. Chapter A.S.H.V.E. Hears Address on Air Conditioned Home

The New York Chapter of the American Society of Heating and Ventilating Engineers held its regular monthly meeting on Monday evening, February 18th, in the Building Trades Club, New York City, with President Harry W. Fiedler in the chair.

"A Completely Air Conditioned Home for $3,800," was the subject of an interesting address by D. C. Slipher, engineer in charge of Heating and Air Conditioning Houses, Inc. He explained the work of his company in developing low cost, fabricated houses and gave a detailed description of this company's system. The $3,800 house will be sold on time payments for $38 a month with no down payment. It will have two bedrooms, a living room, kitchen and bath.

The principal feature of the house is a unit between the bathroom and kitchen, which contains all the mechanical equipment of the building.

A combination of aluminum foil and fibrous insulation is used to reduce heat loss of the house and insure low cost heating and cooling. The buyer will be allowed to select his own type of fuel, either coal, gas, oil or electricity.

The $9,900 house will contain 10 rooms, three baths and a two-car garage.

The Company is erecting twenty-five houses in a section of White Plains, N. Y., which will be used as a "proving ground" to test out air conditioning and heating apparatus. The plumbing and heating work in this entire group of buildings will be done by licensed men.

"Protecting Real Estate Equities," was discussed by three speakers, each of whom approached the subject from a different angle.

B. J. Gilroy, formerly with the HOLC, explained how the Federal government is protecting real estate values through the FHA and HOLC.

O. O. Oaks of the American Radiator Company touched on the work of manufacturers in general and on that of his own company in particular in promoting modernizing campaigns to increase the value of buildings. He said that his company is doing some real business in this field.

Dexter Purinton of Voorhees, Guelin & Walker concluded the subject by explaining how the banks have been affected by the low real estate values, and what their attitude is in respect to the use of modernizing for increasing values. "The banks," he said, "have found that many apartment buildings can be made to pay, if brought up to date by modernizing. There is, however, a limit to the number of apartments in a given neighborhood that can be made to pay by this means, as each succeeding modernized building will give a smaller return."

Sales Engineering School Conducted by G-E Air Conditioning Institute

Approximately 250 air conditioning field representatives attended the special sales engineering school conducted by the General Electric Air Conditioning Institute at Schenectady, N. Y., during the four weeks, January 14 to February 9. Dealers and distributors of G-E air conditioning apparatus in 33 states, the District of Columbia, and Canada were represented, each of them having sent from one to six men.

Probably no other effort has ever been made to provide air conditioning men in the field with such a complete and intensive course of instruction in the theory and practice of air conditioning, stressing the product, its proper application, and its sales features rather than simply the technique of selling.

In addition to lecture, classroom, and practical apparatus laboratory facilities, the school provided complete living accommodations for its students and made available to them a planned program of recreational activities, including winter sports, for their spare time.

From Monday to Friday, inclusive, of each school week, a well filled training schedule was followed, beginning at 8:30 a. m. and continuing, with time out for meals and an hour's gymnasium work, until 10 p. m.—the evenings being taken up with a two-hour period of supervised study. On Saturday mornings, written examinations were held on the work of the preceding week, after which the students had the remainder of the week-end to themselves.

On February 9, a graduation dinner was held, on which occasion the men successfully completing the course were presented with diplomas and the identifying pins of the G-E Air Conditioning Institute.

A PROFIT *for* YOU!

and a PROFIT *for your* CUSTOMER

All on F. H. A. Funds

Where can the modernization-minded home owner find a more attractive proposition than to Hoffman Vacuumize his heating system? See what he gets for his money—

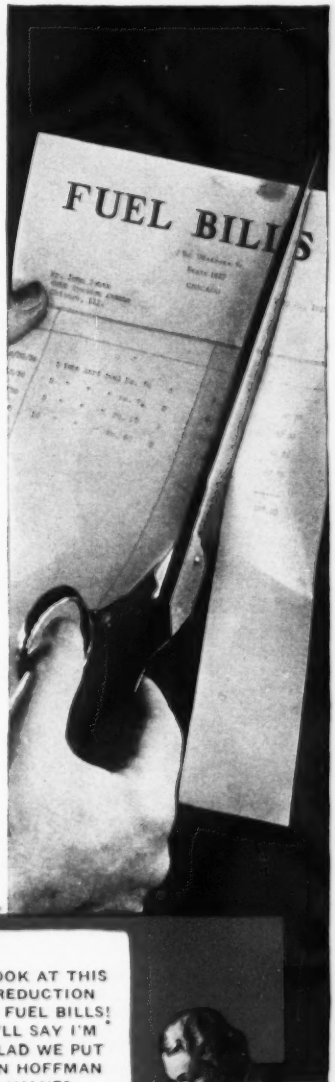
First, he gets extra comfort and convenience far beyond the possibilities of ordinary steam heat. Second, he makes a big reduction in fuel expense—*literally a handsome profit* from his investment in Hoffman Vacuum Valves.

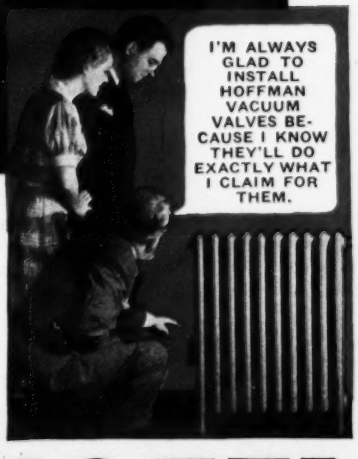
For *your* part, you make a sizable profit on the installation. And besides that, a satisfied customer who remembers you as a man who sells merchandise that delivers full value.

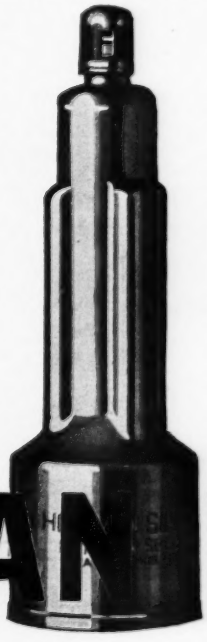
A profit for you—and a profit for your customer! What could be fairer?

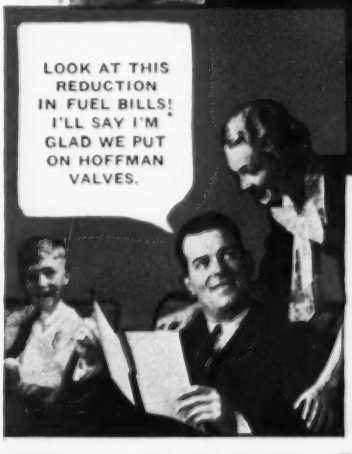
It's easy enough to sell a home owner on the comforts and economy of Hoffmanized Heat—*if you tell him about it!* An installation of Hoffman Vacuum Valves is a self-liquidating type of investment most favored by the F. H. A., hence a loan is easy to get. To help put you in touch with prospects, we are offering a free Direct-Mail service—ask about it. Hoffman Specialty Co., Inc., Dept. RX-108, Waterbury, Conn.

Hoffman Specialties are sold everywhere by leading Wholesalers of Heating and Plumbing Equipment.









HOFFMAN VALVES

Also Makers of Traps, Supply Valves and Hoffman-Economy Pumps

TOP—*125 H. P. Century 3-Phase, 2200 Volt, 60 Cycle Motor Direct Connected to Centrifugal Pump.*

BOTTOM—*75 H. P. and 25 H. P. Century 3-Phase, 220 Volt, 60 Cycle Motors, Belt Connected to Ammonia Compressor in Cold Storage Plant.*

BIG MOTORS *for* BIG JOBS

The illustrations on this page are typical of the many heavy-duty installations where Century Motors are steadily doing a big job — constantly meeting the severe shocks, strains, and stresses imposed by belt, chain, gear or direct drives . . . Sizes up to 600 H.P. . . . Consult Century Engineers—Investigate Century Big Motors for Big Jobs—"They Keep a-Running."

Splash Proof • Multispeed • Slip Ring • Direct Current

CENTURY ELECTRIC COMPANY
1806 Pine Street , , , St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century

SINGLE PHASE, POLY-PHASE, DIRECT CURRENT
1/250 to 600 H. P.
MOTORS

Pioneering in Railway Air Conditioning Is Described

The mechanical refrigerating equipment now widely used in railway air conditioning is not the result of any recent development, but has been preceded by many years of intensive study and research. The average air conditioning system seldom involves the intricate problems encountered in the engineering, design and application of equipment for railway air conditioning service.

The history of this development had its inception in the application of mechanical refrigeration to refrigerated cars used in the transportation of perishables.

It was not until a number of years later that the value of mechanical refrigeration for air conditioning on passenger cars was fully appreciated. Early in 1931 efforts were united in the development of special equipment for railway air conditioning.

During the summer of 1932, additional cars were operated with air conditioning equipment. One of the outstanding installations was made on the famous train, the George Washington, of the Chesapeake & Ohio railroad. This was the first train in the world operating on a regular schedule to be completely air conditioned, and this date of installation serves as a milepost in the history of railway air conditioning.

Some of the problems encountered centered about the fact that equipment mounted under the cars, was exposed to the heat of the roadbed, which often varied from 130 deg. Fah. during the day to chilling temperatures at night. Also equipment was exposed to dust, dirt and sand sucked up in clouds under the cars as they sped across the country. Precautions had to be taken against belt slippage caused by varying weather conditions. It was necessary to install the equipment so that no amount of vibration could loosen the bolts and no sudden jolt could damage any portion of the system. The unit had to have sufficient capacity to keep the inside car temperature at a comfortable point even when exposed to the direct rays of a blistering sun and when only hot air was passing over the air cooled condensers and compressor cylinders.

Absolutely dependable performance of railway air conditioning equipment is very important. Railroads make air conditioning one of their strongest appeals for public patronage during the summer months or on routes through hot sections of the country.

Importance of Proper Doors

On the first floor of buildings, drafts from outside doors are encountered. If all building entrances and first floor shops were equipped with revolving doors, weatherstripped double doors, or storm doors, heating troubles would be greatly reduced. The heat loss from a shop is frequently quite high because of the large area of glass in show windows, the radiators often work at a disadvantage because of being boxed-in or concealed in some way, and then if a large air change is added due to the frequent opening of the outside door, a condition which often results in underheating is obtained. The condition is made worse if the shop occupies a corner and has doors on both sides.

Regal Jacket KEWANEE

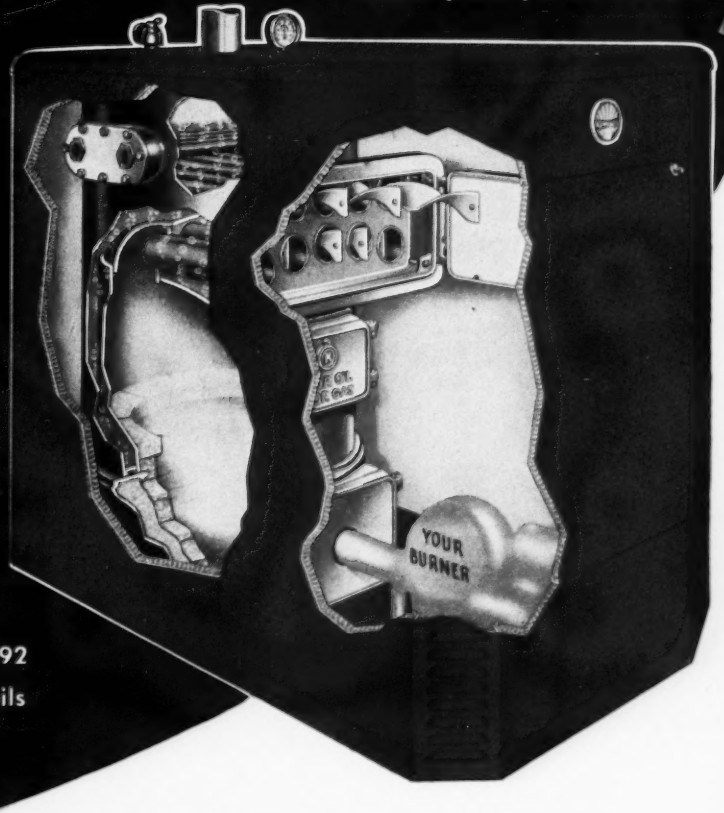
Here's a combination that will completely satisfy any home owner. If he (or she) is interested chiefly in appearance the Regal Jacket has an immediate "eye appeal".

And those who go to the "heart" of things and look under the jacket, as everyone should, find the Kewanee Round Boiler with all those features of design, engineering and construction which have made this boiler so economical for heating homes and smaller buildings.

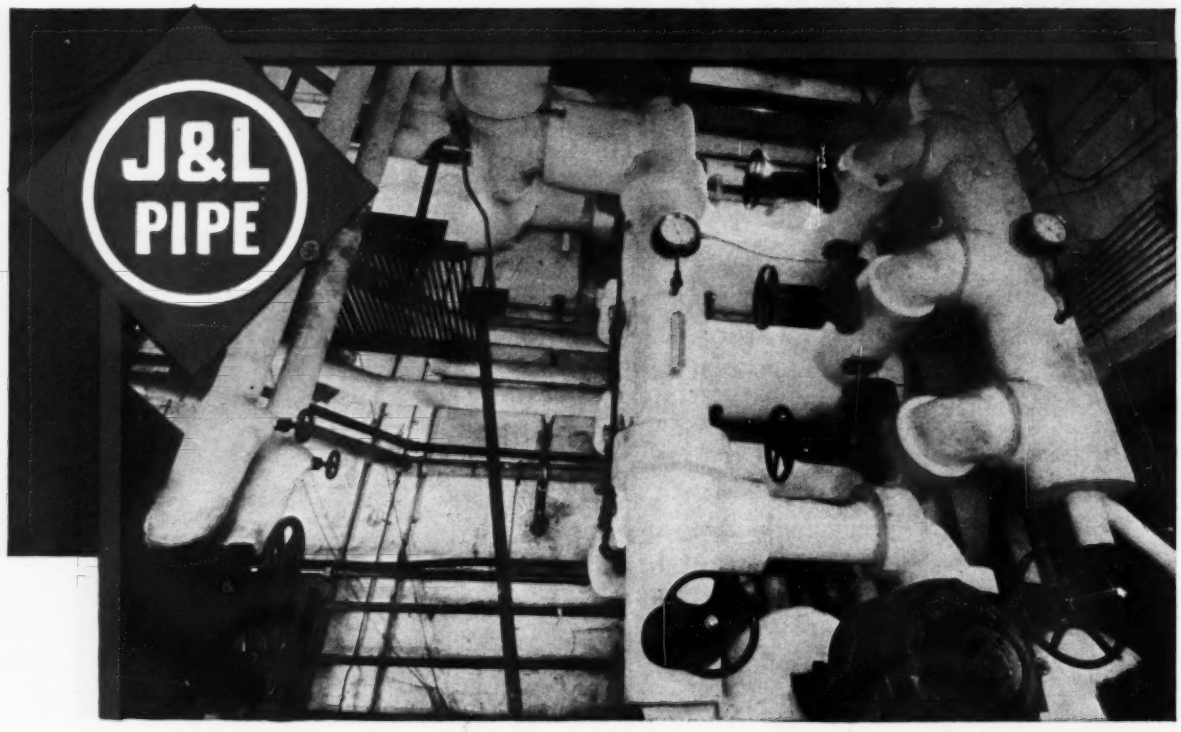
KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS
Eastern District Office: 37 West 39th St., New York City

The KEWANEE Round BOILER and ANY BURNER in ONE FINE JACKET

NEW Regal Jacket to completely enclose the Kewanee Round "R" with any gun type burner. (The Square Jacket when Rotary Burners are specified). Also Hot Water Coils of greater guaranteed output.



Catalog RG-92
has the details



A 100% J&L STEEL PIPE INSTALLATION

for this air conditioning system

J&L
CONSTRUCTION
PRODUCTS

Light Weight Rolled Channels
Junior Beams—Steel Pipe
Bars for Concrete Reinforcement
Standard Structural Shapes
Steel Piling—Nails
Tie Wire
Fabricated Structural Work, including Steel Plate Construction

Jones & Laughlin Steel Pipe was used exclusively for the air conditioning system installed recently in the Lazarus Department Store at Columbus, Ohio. Standard Pipe in several sizes was used for the cooling system. Part of it was furnished with threads and couplings and the balance with plain ends, beveled for welding. **J&L** 15½" water well casing was used for the well supplying water for the system.

Design Engineer: Edward E. Ashley; *Piping Contractor:* S. A. Esswein Plumbing & Heating Company; *Water Well Contractor:* R. M. Baker

J&L Steel Pipe is a high quality product which makes up easily and gives long, satisfactory service. It is made in a full range of weights and sizes. You may look to **J&L** for all your pipe requirements. Write for a copy of the 88-page **J&L** Pipe Catalog. Your request will incur no obligation.

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL MAKERS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

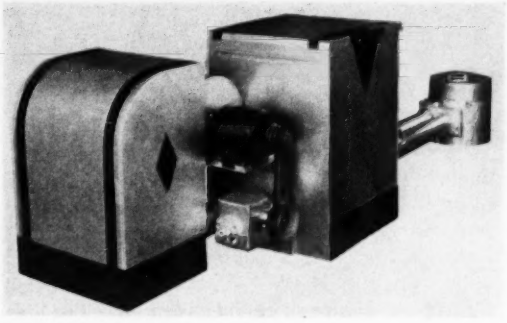
J&L STEEL

Products FOR Dealers

This section gives a report of the latest news of selected automatic heat and air conditioning products. Sales helps such as these work to open up new and increasing markets for A. H. and A. C. Dealers.

Automatic Stoker Announced

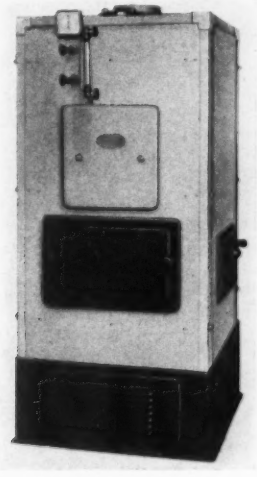
The accompanying illustration represents an automatic coal stoker which just recently has been placed on the market to include improvements over an older model. The illustration shows the cover for the fan, motor and drive placed to one side. In operation, this equipment is made to be totally enclosed. The motor is mounted in rubber, the fan is insulated and the transmission is of the double worm reduction type, all designed for quiet operation. The unit has been made to rest flat on the floor so as to prevent any dirt from collecting under the hopper or working parts. The finish is aluminum trimmed



in black. A four-speed adjustable drive is listed as standard equipment on each unit, thus making each size applicable over a wide range and permitting the use of a wider range of fuel. The equipment is built in sizes ranging from 18 to 30 lb. of coal per hour, or 30 to 50 lb. per hr. Ten larger commercial sizes are available. Heating Assurance, Inc., located at N. 121 Browne Street, Spokane, Wash., is the manufacturer.

New Boiler Is Designed for Coal, Oil or Gas

The accompanying illustration shows a new type of copper tube boiler especially designed for fuel economy that has just been placed on the market. This new boiler is designed for three types of fuel—coal, oil or gas. No boiler change is necessary, it is stated, to go from one fuel to another—only the burner need be changed. The boiler is designed to give the same relative fuel economy with either type of fuel. The following factors, it is said, enhance the value of this boiler as an oil burning unit: Slightly larger combustion space; slightly increased flue passages; increased heating surface due to a water backed combustion chamber instead of a brick lined chamber; larger tubes; heavier gauge copper in the tubes; larger service doors; heavier gauge material, and an air tight jacket. In addition to the full size fire door in the front, there is an additional side service door for removing clinkers when stoker fired. The universal installation for either of the three fuels is placed on a steel base, at a standard height to permit the installation of any type

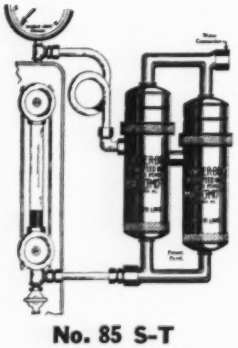


burner, oil, gas or coal. The boiler is adapted to either steam or hot water and is arranged so that only the gauges need be changed to make either a steam or hot water job. It is supplied with a complete boiler-burner unit complete for gas firing only. The manufacturer is the Bryan Steam Corporation, Peru, Ind.

A New Oil and Grease Seal

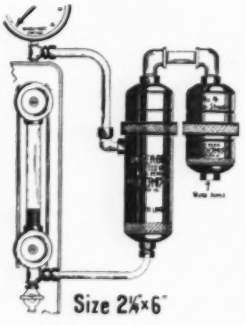
The accompanying illustration shows a recently announced oil and grease seal which has been designed for application to all types of machinery embodying shafts. It is made to exclude completely extraneous matter and to provide positive imprisonment of oil, grease and fluids. The device consists of an outer seal case which is made to lock the seal assembly permanently. An equalizing annular garter spring within the case is designed to provide a uniform continuous contact pressing

STOP WATCHING THE WATERLINE



No. 85 S-T WATER-BOY
Dual Safety feeder

The No. 85 "Siamese Twin' WATER-BOY assures boiler feed safety, particularly on oil, gas and stoker fired installations. These two units are the same in design as the No. 85, except that they are connected together. One of the units is set 3/8" lower than the other. Thus, if Unit 1 should become over-taxed, Unit 2 will start operation after the water has receded 3/8" in the water glass. In this way, it offers even a greater advantage than a low water cut-out. It is cheap insurance and is recommended for low pressure heating boilers up to 5000' capacity.



No. 85 F-4 WATER-BOY
Safety feeder.
No. 4 Duplex Strainer and Fittings to connect to Boiler

EASY TO ATTACH

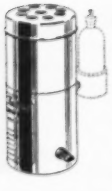
In order to simplify installation of the WATER-BOY, fittings and copper tubing are included in the package when ordered. With these a WATER-BOY can be attached to a boiler or hot water expansion tank in a few minutes.

No. 85-ST. Price - - - - - $12.50

No. 85 F-4 WATER-BOY with fittings, 3 ft. annealed copper tubing and No. 4 DUPLEX STRAINER.
Price - - - - - $10.00

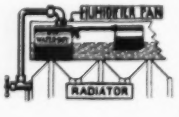
No. 85-F with fittings, but less No. 4 STRAINER..... **$7.25**

No. 85 WATER-BOY only $6.00



Ol' Faithful Automatic Humidifiers have a ready market in every building heated by vapor or gravity steam. Here's easy profits for you, Mr. Steamfitter.
Price - - - - - $8.50

No. 53 WATER-BOY keeps the water pan on a hot water radiator filled automatically. Just what the home-owner has been looking for.
Price (with fittings) $4.00

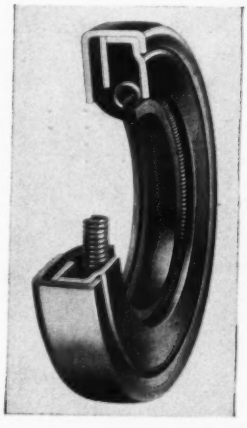


No more air-bound hot water radiators! **No. 200 AUTO-VENT** does the job and assures maximum heating efficiency.
Price - - - - - $3.00

ASK YOUR JOBBER!!!

MAID-O'-MIST, Inc.
Wm. J. Woolley, Pres. 43 E. OHIO ST. CHICAGO, ILL.

against the sealing member circumferentially, at all points. The actual sealing member contacting the moving shaft is made of various materials, usually a processed leather, to suit different conditions such as temperature, peripheral speeds, unbalanced pressures and chemical activity. Applications listed for this new seal include motors, pumps and oil burners. National Motor Bearing Co., Inc., located at 1100 78th Avenue, Oakland, Calif., is the manufacturer of this grease and oil seal.



Sound Proof Cabinet for Air Conditioning

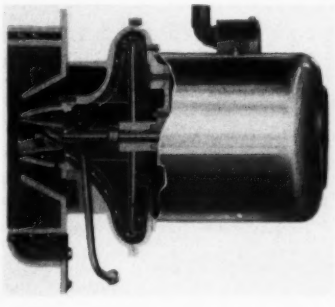
Announcement has been made of there having been placed on the market a new decorative soundproof cabinet designed to be of attractive appearance and finished to harmonize with the appointments in homes, offices, or public lounges. The line of cabinets represented by the illustration shown here has been developed as an added feature of a complete line of air conditioning units

for residential, office and commercial applications. The cabinet is made to enclose completely the mechanical units of the air conditioning system. The finish is walnut veneer. It is built at table height. The sound absorbing and vibration eliminating features of the cabinet have been brought about by the use of built-up layers of 1 in. thick isolating hair felt and 3/8 in. insulating

board. The cabinet is completely isolated from the base and floor by a felt seal and support strips. The top of the cabinet is removable so as to make the interior readily accessible for inspection or adjustment. The legs have been designed to elevate the whole cabinet sufficiently from the floor to allow cleaning under the cabinet. An adjustable feature also is provided for the leveling of the unit on an uneven floor. The base of the cabinet on which the mechanical unit rests is described as being of heavy steel plate construction, strengthened by braces. Water cooling coils are included as a part of each cabinet and are of the heavy aluminum finned copper type construction. York Ice Machinery Corporation, 18 E. 41st Street, New York City, is the manufacturer.

Oil Burner Designed for Small Jobs

The accompanying illustration shows a new type of oil burner especially designed for restaurant ranges, small commercial and domestic heating and process heating. The construction of the unit is very compact. It is of attractive apppearance and the motor has a chrome cover.

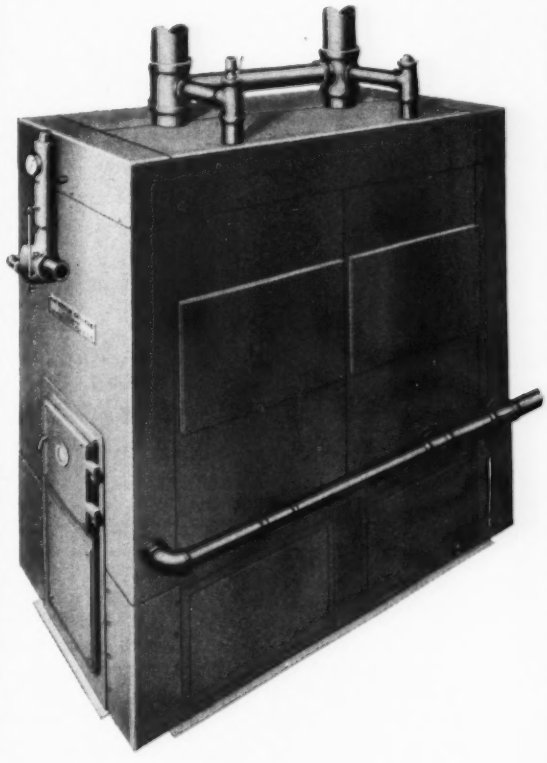


It swings away from the boiler for ready inspection of all parts. There is a slow opening oil supply valve which, it is claimed, prevents "puff" when starting. The air and oil supply may be adjusted easily to suit installation requirements. The burner is made in three sizes for conversion jobs. It is furnished with direct connected oil pump in two larger sizes. The manufacturer is the S. T. Johnson Company, 940 Arlington Ave., Oakland, Calif.

New Type of Steam Trap

The accompanying illustration shows a new type of thermostatic steam trap for individual trapping. This is especially designed to drain high pressure steam coils and jackets in connection with industrial heating and process work, as well as for removing condensate from steam supply lines to all kinds of equipment. This trap, it is stated, can be used for any steam pressure, steady or fluctuating, from zero to 200 lb. per sq. in. It requires no adjustment in the field when steam pressures change. The thermostatic bellows is made from helically corrugated tubing of heavy wall. Special caps are used for the top and bottom of the bellows. These caps have

THE WATERFILM SECTIONAL BOILER



A FLASH BOILER STABILIZED—

20% of water boiling generates steam quickly.

80% stabilizes the action of the quick steaming generators, holding heat the longest possible time.

47" water line.

Can be put into basement through a 2 ft. door.

Steaming boilers—(40 sizes) 1250 ft. to 20,000 ft.

Water boilers—(40 sizes) 2000 ft. to 32,000 ft.

Designed from bottom to top to be used for automatic firing.

Send for full information today.

WATERFILM BOILERS INC

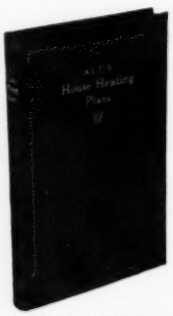
154 OGDEN AVE. JERSEY CITY, N.J.

PLUMBING AND HEATING BOOKS

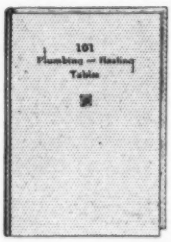
THE value of a library of plumbing and heating books must not be overlooked by contractors large or small. Successful men learn and profit by the experiences of others and the books offered for sale here have a direct bearing on the planning, installing and selling problems that you run into daily. That is why these books have met with such outstanding success.

☆

1. AIR CONDITIONING SIMPLIFIED. A new book which gives a step by step story of air conditioning, what it is, how it works, what it does, how to install it, how it is sold. The book is written in three complete parts from the pens of the leading authorities in the industry and edited by Harold L. Alt, heating engineer. The first part is on theory, the second part on the application of the theory and the third part on getting air conditioning business. 216 pages, 5½x8¼, bound in cloth—price postpaid $1.00.



2. ALT'S HOUSE HEATING PLANS. By Harold L. Alt. Will give the heating contractor, the very latest information for use in designing and installing heating systems for bungalows, residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes design for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Progress within recent years in the design and manufacture of heating has been so great that small structural heating system installations present entirely new and different problems. These are solved in this book. 208 pages, 5½x8½, bound in cloth, price postpaid $1.00.



3. 101 PLUMBING AND HEATING TABLES. This book contains as complete a set of working tables as has ever been published. It answers quickly and accurately, practically every kind of plumbing and heating question which could possibly be answered by a table, rule or chart. Is well indexed. Has 68 pages. New revised edition. Size 8½x11, bound in cloth. Price postpaid $1.00.

4. OIL BURNER HEATING discusses oil burner heating problems from the sale of the job to the operating installation. Every chapter in the book is built upon direct questions asked by heating men. Testing problems worked out show what should be done to test efficiency of installation, how to compare cost of oil or gas heating, how to find heat losses, how combustion chambers are built, what to do when changing from gas installation to oil burner, how to figure oil consumption for year, etc. Can be used on practically any oil burner installation, and much of the information it contains applies also to gas burning boilers and to stokers. 184 pages, 5½x8¼, bound in cloth, price postpaid $1.00.

5. TABLE OF ESTIMATED RADIATION. By Harry B. Perrigo. Gives you the radiation required for heating rooms of any size. There are two tables, one for steam, the other for hot water. All you need is the amount of glass surface, exposed wall, and cubical contents and you can instantly find the radiation required. It comes in a convenient pocket size, 4½x7. The tables are printed in two colors on heavy celluloid making 4 pages, substantially bound. Price postpaid $1.00.

6. 500 PLAIN ANSWERS TO DIRECT QUESTIONS ON STEAM, HOT WATER, VAPOR AND VACUUM HEATING. By Alfred G. King. Covers the science and general practice of heating including modern systems of modified heating explained in a series of plain questions and answers with tables, rules and general information. It makes a splendid text-book for the apprentice and an ideal reference book for master fitters.

Has 253 pages, 6x9, bound in cloth. Price, postpaid $2.50.

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Please send me the books which I have checked.

I am enclosing my check for $..... to cover.

1. ☐ Air Conditioning Simplified.
2. ☐ Alt's House Heating Plans.
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4. ☐ Oil Burner Heating.
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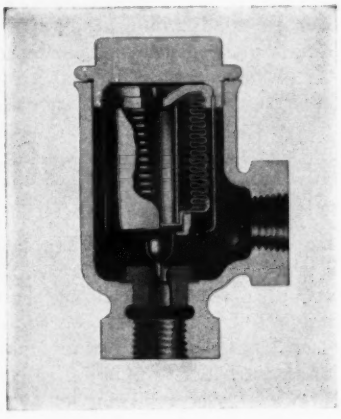
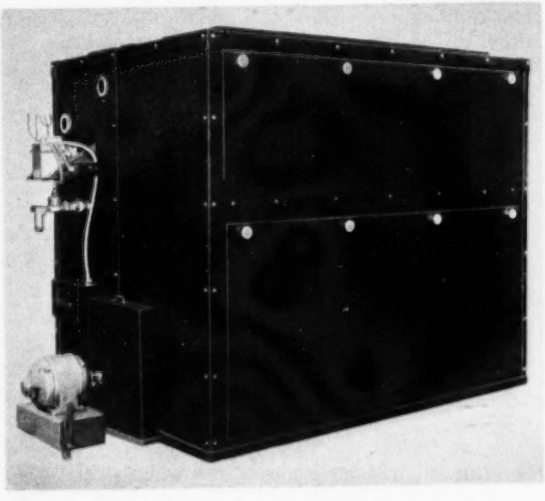
internal screw threads of the same pitch and profile as the flexible tubing, which is screwed right into the cap. The shield protects the element over its entire length against the abrasive action of the steam. It also permits the element to be removed from the trap body while hot, if this is desired. The body and cap are of heavy cast



bronze. The valve head and seat are of stainless steel. Both are easily renewable. This trap is manufactured by the Sarco Company, Incorporated, 183 Madison Avenue, New York City.

Air Conditioning Plant for Fine Homes

The accompanying illustration shows a central station air conditioning plant designed specifically for fine homes. This unit is complete in that it provides for filtering the air, temperature control, humidity control and air circulation. The unit is fully automatic. It is regulated by the room thermostat and humidistat. To change from cooling to heating, or the reverse, merely necessitates the



YOUR MEN
Needn't Pass Up
ANY HOME
if They Sell the
WHITING
STOKER

Every house in every block would be a prospect. Through the invention and combination in the Whiting Stoker of the Dual Draft Burner, Five Speed Drive, Smoke-Eliminator and Masterstat Control, automatic heat can now be even more economical than firing a furnace by hand. The Whiting Stoker has proved that it can open up one of America's newest, greatest *mass* markets.

1934 was not only the stoker industry's greatest year—but it was record-breaking for Whiting too. Now Whiting comes into the 1935 season, planning for by far the biggest year of all. Whiting has the product, selling prices, discounts, finance plans, local and national advertising necessary to capture this great new market.

Aggressive plumbing and heating dealers—interested in greater sales and profits—should investigate this new and outstanding success. The coupon will bring the facts.

WHITING
STOKER

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New Whiting Merchandising Plan

Whiting Corporation is one of the world's oldest and largest manufacturers of solid fuel burning equipment. For over 50 years Whiting has saved the nation's largest industries and utilities millions in fuel costs.

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FOR YEAR AROUND

DOMESTIC HOT WATER

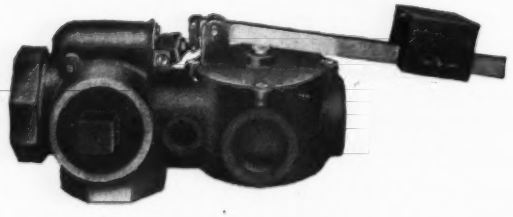
AND IMPROVED PERFORMANCE

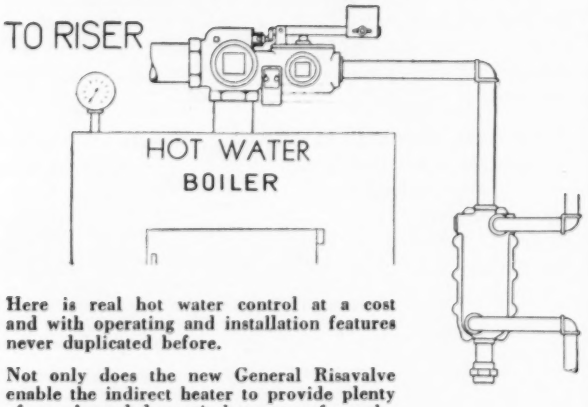
NI HOT WATER RADIATION

INSTALL

THE NEW

GENERAL RISAVALVE





Here is real hot water control at a cost and with operating and installation features never duplicated before.

Not only does the new General Risavalve enable the indirect heater to provide plenty of year 'round domestic hot water, from the hot water boiler, but it definitely improves house heating performance on most conversion jobs.

1. No motors, no noise, no operating cost.

2. Adjustable to all needs both for tap water and radiation.

3. Construction entirely eliminates all danger of valve seat sticking or leaking.

Write now for the interesting details of this strikingly new and different method of hot water control—the simplest, most attractive proposition on the market.

*GENERAL RISAVALVE

Product of GENERAL FITTINGS CO.

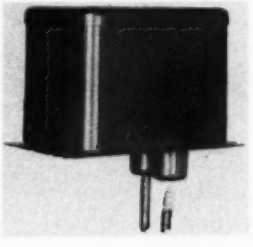
Providence, R. I.

******a unit of the* **3-G System**

closing of a few valves and the opening of others. It is equally as adaptable to homes already complete as to new residences, it is said. This unit can be installed in connection with either a steam or hot water heating system. The complete unit consists of two main assemblies; a front assembly which contains the filters and fans; and a back assembly which contains the heating and cooling coils, controls and winter humidifier. While this new unit was designed especially for home installation, it is also adaptable for air conditioning a suit of offices, a small office building and small school, church, or hospital, it is stated. The manufacturer is the Clarage Fan Company, Kalamazoo, Mich.

New Line of Ignition Transformers

A new line of ignition transformers, designed to provide freedom from radio interference and also flexibility of mounting and connections has been placed on the market. Each high voltage terminal consists of a receptacle with a removable plug arranged for attaching to insulated cable. This construction simplifies assembly with the burner and prevents accidental contact and shock without

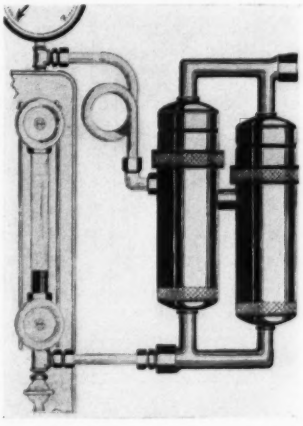


the use of porcelain insulating caps or metal terminal shields. These transformers are balanced electrostatically, the mid-point of the high voltage winding being grounded and an electrostatic shield separating the high voltage coils. The transformers are obtainable with slots in the base for universal mounting (see accompanying illustration) or with studs for concealed mounting. They provide an ignition voltage of 10,000 volts. A 12,000 volt transformer in this construction is also available to meet the requirements encountered when burning heavy grades of fuel. The manufacturer is the General Electric Company, Schenectady, N. Y.

Dual Water Feeder for Heating Boilers

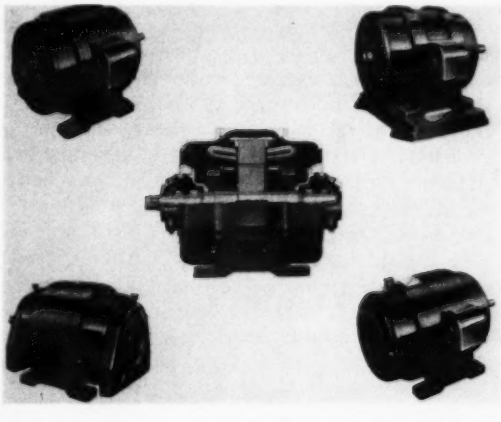
The accompanying illustration shows a new type of dual water feeder for heating boilers. It consists of two units joined together in the center in Siamese fashion, with casting top and bottom. The unit is designed to act as an extra safeguard on oil, gas and stoker fired installations. One of the units is set ⅜ of an inch lower than the other. Thus, if unit No. 1 should become overtaxed, unit No. 2 will start operating after the water has receded ⅜ of an inch in the water glass. All working parts can be removed without lowering the water in the boiler or

draining it as the two union nuts permit the lifting of the upper shells and then the float mechanism of both units can be taken out with the water still standing in the boiler. The feeder is supplied complete with fittings and tubing to connect it as shown in the accompanying illustration. It is designed for low pressure heating boilers up to 5,000 ft. Each of the units is equipped with a non-corrosive screen in the top bonnet. Maid-O'-Mist, Inc., 43 E. Ohio Street, Chicago, Ill., is the manufacturer.



Convertibility Features New Motors

A new line of convertible squirrel cage and slip ring induction motors, offering all standard frequencies for service ranging from 110 to 220 volts, has just been announced, and is illustrated herewith. The outstanding feature of these new motors is their ready convertibility from open type to fan cooled, splash proof or totally enclosed construction, it is pointed out. This is accomplished through the design of the frame, end heads and bearings to permit interchangeability in the four above mentioned types of single or multi-speed squirrel cage and slip ring motors. These convertible motors range from ½ h. p., 600 rpm to 125 h. p., 3,600 rpm. They are manufactured by the Harnischfeger Corporation, West National Avenue, Milwaukee, Wis.

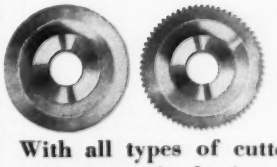


FOR STRENGTH AND SAFETY

The New "TRIMO-ALLOY" PIPE WRENCH

No pipe wrench made can duplicate the strength and safety which come from all-alloy steel — all drop forged — all heat treated construction. Look for the red tag.

FOR SPEED AND CLEAN CUTTING



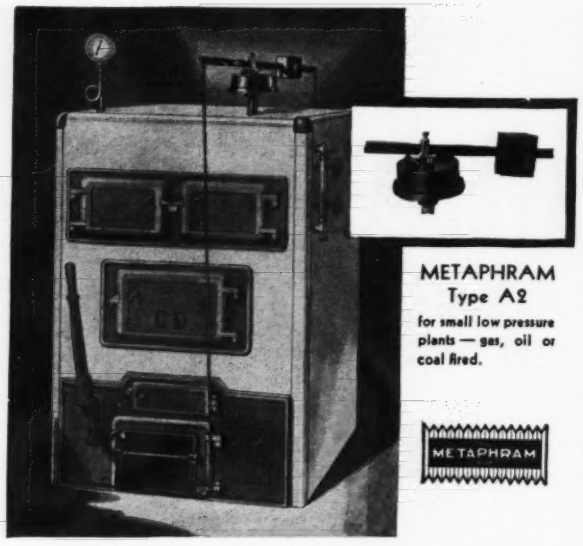
"TRICROME" CUTTER WHEELS

With all types of cutters these thin blade special analysis steel wheels can be counted on to speed cutting, eliminate burr. The silvered wheel with the red hub is your best guess for cutter wheels.

FOR HONEST VALUE EVERY TIME

Use TRIMO pipe tools, cutters, wrenches, vises, cutter wheels

TRIMONT MFG. CO., Roxbury (Boston), Mass.



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covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil, or coal fired.
Full stock carried in New York, 210 E. 45th St.

Descriptive Bulletins on Request

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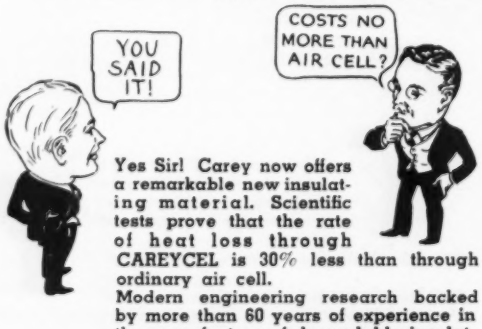
ASBESTOS INSULATION



Yes Sir! Carey now offers a remarkable new insulating material. Scientific tests prove that the rate of heat loss through CAREYCEL is 30% less than through ordinary air cell.
Modern engineering research backed by more than 60 years of experience in the manufacture of dependable insulating materials produced this vastly improved, low pressure pipe and boiler covering.
You can sell CAREYCEL at the same price as air cell—that's why it's important to use Careycel on every job—give your customer the best insulation and the best looking job at the lowest cost.

Write Department C for free sample and full details.

THE PHILIP CAREY COMPANY
Dependable Products Since 1873
Lockland, Cincinnati, Ohio Branches in Principal Cities

Large Hotel in Iowa to Be Air Conditioned

Frigidaire Division, General Motors Corporation, of Dayton, Ohio, has received an order from F. L. Maytag for air conditioning equipment for the Maytag Hotel in Newton, Ia. The building is five stories high and a block long. It will be one of the most completely air conditioned hotels in the United States, having a majority of its guest rooms and suites as well as most of its public rooms conditioned. The installation work is to be done by May 1, in readiness for summer business, according to E. G. Biechler, president and general manager of Frigidaire. Mr. Biechler pointed out that the Maytag order is indicative of the rapid strides with which air conditioning activities are moving forward.

December and January, he stated, showed more than 300 percent increase in the company's air conditioning sales volume over the same sixty-day period a year ago, demonstrating the foresightedness of business men, retail store owners and home owners in equipping their establishments and homes during the winter months in preparation for the coming summer. Air conditioning sales volume has reached the point, he said, where manufacturing activities have been put on a mass production basis in one of the division's two plants in Dayton.

N. J. Allaben Joins Preferred Utilities Mfg. Corp.

After fifteen years as vice president of the Federal Gauge Co., now operated by the Mercoid Corp., Chicago, N. J. Allaben has resigned his connection with both the above companies to assume association with Preferred Utilities Mfg. Corp. of New York on March 1.

Quick Thinker Secures Order for Oil Burner

By quick thinking, an intelligent canvasser in the Schenectady, N. Y., house-to-house canvass was able to interest a home owner in securing a modernization loan to buy a new furnace. Upon entering, the worker remarked that the house seemed rather cool. After receiving the reply that the furnace was not working properly, he explained to the lady of the house that she could secure a modernization loan to remedy the situation.

The home owner insisted that headquarters be immediately called and a man sent to her home to estimate on the cost of installing an oil burner. This was done, and the lady applied for a loan at once. Although a credit statement showed that she possessed a sizable savings account, the applicant stated that she preferred to borrow under the modernization credit plan, a letter from a Headquarters Staff Field Representative reports.

How to Set Air Valves on Heating Installations

There still are some who are not sure of the proper way to set an air valve, although their number is becoming less very rapidly. The writer used to employ the following method which worked out very successfully and may be of some help to the man placing the valves on

the radiators. The first thing is to see that all valves before installation are open to a considerable degree and that no white lead or compound is in the valve tapping on the radiator; the fact of the valve being fully open may be ascertained simply by blowing through the valve before inserting it in the radiator. A little practice will enable a man to tell at once if the valve is set down too far to give free air emission. Then raise 5 lb. of steam on the system after all of the valves have been installed and go around and set the valves down to the point where they just prevent the steam escaping at 5 lb.

This will result in every valve being open to the maximum amount possible and still not to permit the escape of steam which is the ideal air valve characteristic. The reason the 5 lb. is used is that some air valves are tight at 2 lb. but will leak slightly at 5 lb., and, if the system pressure is later raised by the owner to 5 lb., he will be inclined to take matters in his own hands and try to set the valves himself, which may result in the closing down of the valve to too great a degree. This is likely to require a service trip later when the radiators will not heat at lower pressures and may ruin the valve entirely.

While the foregoing remarks are particularly in regard to one-pipe gravity air valve steam systems, they may be applied as far as they are suited to other systems. In cases of obscure difficulties, the use of pressure gauges and pet cocks often give enlightenment as to what is going on in the system. A pet cock at the end of the steam main will indicate at any time whether water is collecting in the end of the main and a similar pet cock in a dry return will do as much for that line. Pressure gauges are useful in cases where pressures are in doubt just as was suggested in the case of water leaving the boiler which was discussed in particular in the first part of this article. Pressure gauges will not indicate, however, whether the pressure is steam, water or air, and, unless accurate pressure readings are desired, the pet cock usually is a bigger help, in finding what is going on, than the pressure gauge.

Index—

(Continued from Page 71)

December Shipments

	1934	1933	% increase 1934 over 1933
Domestic—Mechanical Draft.	3,620	2,398	
Domestic—Natural Draft....	452	393	
Industrial—Mechanical Draft	686	412	
Industrial—Natural Draft....	195	236	
Boiler Burner Units.....	432		
Furnace Burner Units.....	60		
	5,445	3,439	58.3%

Air Conditioning Equipment

Value of orders in dollars booked for air conditioning equipment as reported by 35 manufacturers:

	1934	1933	% increase 1934 over 1933
Fan Group	5,382,712	4,051,189	32.8%
Unit Heater Group.....	5,643,245	2,804,826	101.2
Air Washer Group.....	1,988,121	960,765	106.9
Total value	13,014,078	7,816,780	66.4%

Every new or old heating job, Large or Small, should have an

EXCELSO

QUALITY WATER HEATER

There is a type and size for every building.

Capacities range from 30 to 2500 gallons.

EXCELSO PRODUCTS CORP.

57 Clyde Avenue Buffalo, N. Y.

or

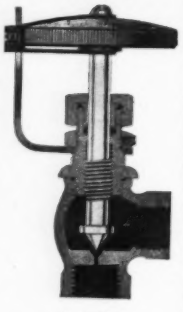
Ask Your Jobber

MOST INTERESTING HOTEL in CHICAGO
Located in the heart of Chicago's gay Rialto with its brilliant night life...yet close to stores, offices and railroad terminals.
HOTEL
SHERMAN
1700 ROOMS 1700 BATHS
Every room as modern and new as next year...from $2.50
Home of the College Inn.
DRIVE YOUR CAR RIGHT INTO HOTEL SHERMAN
CHICAGO
GARAGE

MILWAUKEE VALVES

THOSE UNUSUAL TYPES OF VALVES

No. 529
Silencer Valve for Oil Burner Installation



No. 602-S
Indicator Top Needle Valve Angle Type

For which there is a frequent demand in our industry are available in the complete "Milwaukee" line. Note particularly the two types illustrated. For further information consult your nearest "Milwaukee" distributor or write to—

MILWAUKEE VALVE COMPANY

Milwaukee *Manufacturers of* Wisconsin

"Milwaukee" Heating Specialties and "Approved" Bronze Valves.

December Shipments (value in dollars)

Fan Group	426,759	363,390	17.4
Unit Heater Group	687,218	346,266	98.4
Air Washer Group	118,051	49,876	136.6
Total value	1,232,028	759,532	62.6%

Mechanical Stokers

Shipments of mechanical stokers as reported by 62 manufacturers in class 1; 51 in class 2; 47 in class 3, and 60 in class 4.

	1934	1933	% increase 1934 over 1933
Class 1—			
Residential	16,513	11,070	48.2%
Class 2—			
Apartment house and small commercial heating jobs.	1,808	1,047	72.6
Class 3—			
General commercial heating and small high pressure steam plants	916	1,041	*13.6
Class 4—			
Large commercial and high pressure steam plants	2,016	1,652	22.0
Total	21,253	14,810	43.5%
December Shipments			
Class 1—Residential	1,489	833	78.8
Class 2—Apartment house	171	122	40.2
Class 3—General commercial	77	102	*32.5
Class 4—Large commercial	151	122	23.7
	1,888	1,179	60.2%

*Percent decrease—1933 to 1934.

Fundamentals of Heating

A new and novel heating book. Easy to read—easy to understand. No high-sounding terms. No high mathematics. All you need to know is how to add, subtract and multiply.

One hundred everyday work problems.

One hundred detailed solutions.

Not only tells "How," but shows "How."

Ten Chapters—

Ten Lessons—

Ten Examinations—

Size 6½" x 9".

By Ara Marcus Daniels
Special Edition

Here is a book which begins with the A. B. C. of heating and progresses step by step to the more complicated problems. Each step is fully explained, and, examples of the application of all rules are given. It is so complete, so clear, that any heating man can follow it. By beginning at the first chapter and mastering each subject as he progresses through the book, he can equip himself with knowledge that will qualify him to handle almost any heating job.

Special Edition now priced at only $1.00, postpaid.

DOMESTIC ENGINEERING
Book Department
1900 Prairie Ave., Chicago

Hospital—

(Continued from Page 82)

South Wall

Wall, 228 × 0.25 × 15 degrees ..... 855 Btu.
Glass, 72 × 1.1 × 15 degrees ..... 1,188 Btu.
2,043 Btu.

Floor, 1,272 × 0.61 × 15 degrees ..... 11,639 Btu.
Ceiling, 1,272 × 0.36 × 15 degrees ..... 6,869 Btu.
18,508 Btu.

Grand Total of Wall, Glass, Ceiling and Floor .... 30,744 Btu.
Sun Effect, Greatest on East or West Walls and equal to 144 sq. ft. glass × 50 Btu. or ..... 7,200 Btu.
Electric Light Effect, included with sun effect—none.
Body Heat, 14 Patients
1 Nurse
7 Visitors (est.)
22 @ 215 Btu. ..... 4,730 Btu.
2 Air Changes 2 × 53 × 24 × 12 or 30,528 c.f.h. 30,528 × 15 degrees / 55 degrees .... 8,325 Btu.

Total of all other sensible heat ..... 20,255 Btu.

Grand Total of all sensible heat ..... 50,999 Btu. per hr.
Adding 10 per cent for contingencies ..... 5,099 Btu. per hr.

Btu. to be removed per hour ..... 56,098 Btu.
Air required 56,098 / 0.18 or 311,655 c.f.h.
Air required per minute, 311,655 / 60 or 5,194 c.f.m., say 5,200 c.f.m.

The way this divisor of 0.18 was developed is as follows: assuming that the entering air is 10 degrees below the room temperature, every cubic foot on entering

the room will be warmed 10 degrees to reach the room temperature and will pick up the heat necessary for this warming from the air already in the room. Now, if a cubic foot of air at or around 70 deg. Fahr. is warmed 55 degrees, it requires about 1 Btu. to raise the temperature this amount, so if the cubic foot is only raised 10 degrees it will require 10/55 of a Btu. or 0.18 (plus) Btu. Therefore, if every cubic foot of entering air picks up 0.18 Btu. from the air in the room and there is a total of 56,098 Btu. to be removed, the number of feet of air required will be 56,098 / 0.18 Btu. or 311, 655 c.f.h.

OUTLETS IN CENTER OF ROOM

As the room is too narrow to place two ceiling outlets the short way of the room it will be considered that the outlets will be placed down the center of the room and, if three outlets are used, the amount of air supplied by each will be

5,200 c.f.m. / 3 or 1,733 c.f.m.,

and if a circular outlet is considered with a diameter of 36 in., the circumference will be approximately 9 ft. (3 ft. $\times$ 3.14) and the quantity of air passing each foot of circumference will be

1,733 c.f.m. / 9 or 192 c.f.m.,

which at a velocity of 300 f.p.m., will require

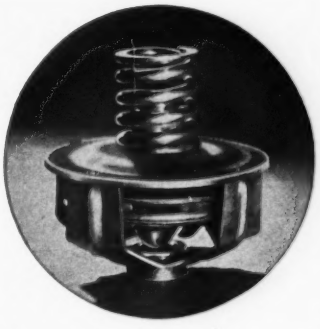
192 c.f.m. / 300 f.p.m., or 0.64 ft.,

which is equivalent to 7¾ in., for the height of the slot, provided the slot were all free opening. Probably the bars will cut off one third of this area so 50 per cent should be added to the height making

7.75 plus 50 per cent of 7.75 or 11⅝ in.

This is rather a high slot and as the only remedy would be to use more, or larger diameter, outlets, the alternative is presented of using four outlets, or of substituting plaques. As four fixtures would bring the outlets almost too close together, it will be assumed that plaques will be substituted in which case—if a round plaque were used—the free area for a 3 ft. would be the same as calculated for the 3 ft. fixture before the allowance for bars was made, and the edge of the plaque would have to be about 7¾ in. below the ceiling.

It now is necessary to get a supply duct or ducts up to feed the cooled air to the plaques and it is noted that a small space on each side of the main door and between the door and the cabinets is available. In order not to unbalance the room appearance, one supply duct will be placed on each side of the door. If the last plaque and half the air to the middle plaque is supplied from one duct, and if the near plaque, and half the air to the middle plaque, is supplied from the other duct, each duct will be of the same size and will carry 1,733 c.f.m., plus ½ of 1,733 c.f.m., or 2,600 c.f.m. and the two ducts will carry 2,600 c.f.m. $\times$ 2, or 5,200 c.f.m., the total air supply as previously computed.



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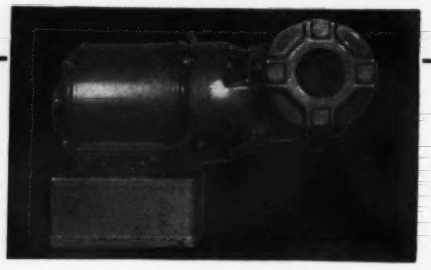

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It now is necessary to remove the exhaust from the room and this can be accomplished by installing grilles at the floor in small enclosures which may be used for tables or shelves. These are arranged, one on each side

TABLE 1

Suggested Inside Temperatures for Exposures of Less Than Three Hours

Outside Temperature Dry Bulb Deg. Fahr.	Inside Temperature Dry Bulb Deg. Fahr.	Inside Temperature Wet Bulb Deg. Fahr.	Effective Degrees
95	80	65.0	73
90	78	64.5	72
85	76.5	64.0	71
80	75	63.5	70
75	73.5	63.0	69
70	72	62.5	68

From 1934 Guide of the American Society of Heating and Ventilating Engineers.

of the nurse's table, each taking 867 c.f.m., one on each side of the room about midway of its length each taking 867 c.f.m., more, and one on each side of the door adjacent to the supply ducts and also taking 867 c.f.m. each. If the return ducts from these are sized on the same basis as the supply ducts, and remembering there is 100 per cent recirculation to avoid air pressure in the

TABLE 2

Heat Emitted by Various Sources

Lights and Electrical Appliances per hour	3,415 Btu. per Kw.
Motors, per horsepower per hour	2,546 Btu.
Dish Warmers per 10 sq. ft. of Shelf	6,000 Btu. per hr.
Coffee Urns, 10 gal. cap	16,000 Btu. per hr.
Restaurant Gas Range, 4 Burners and Oven	100,000 Btu. per hr.
Residence Gas Range:	
Giant Burner	12,000 Btu. per hr.
Medium Burner	9,000 Btu. per hr.
Oven per cubic foot capacity	1,000 Btu. per hr.
Pilot Light	250 Btu. per hr.
Electric Ranges:	
Small Burner	3,412 Btu. per hr.
Medium Burner	4,100 Btu. per hr.
Large Burner	7,700 Btu. per hr.
Oven	10,236 Btu. per hr.
Appliance Connection	2,250 Btu. per hr.
Warming Compartment	1,023 Btu. per hr.

room, the size of the main return duct in the basement will be the same as for the supply air. A complete layout of the duct system, outlets, and the like is shown in Fig. 2 and it is assumed that the equipment arrangement in the basement will approximate that already shown and described for central air conditioning plants in earlier installments of this series.

Probably it would prove desirable in this installation to use a separate exhaust fan and not try to operate the whole system on a single fan. In this case the exhaust would be connected to the suction of the exhaust fan

and the discharge from the exhaust fan would be carried out of the building through a full sized 100 per cent air capacity duct with a full size damper in the outboard exhaust and a cross connection of full size into the intake chamber of the supply fan with a second damper in this cross connection set to operate in opposition to the damper in the outboard exhaust.

Research —

(Continued from Page 86)

the second story is considerably greater than that for the first story and the cooled air would tend to drift downwards to the first story.

The total dehumidification or amount of moisture condensed out of the air during the entire test lasting 11.67 hours was 21.22 lb. and the ratio of the heat absorbed by the change in the moisture content of the air to the total

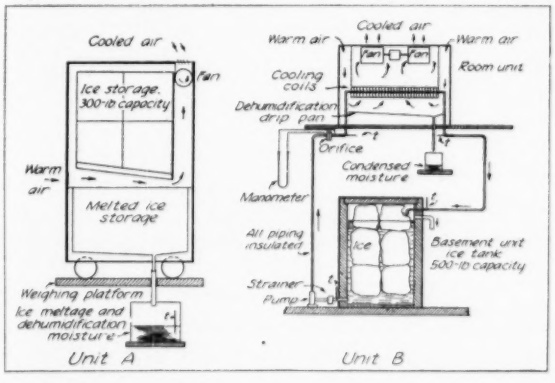
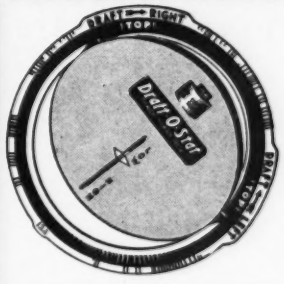


Fig. 4—Diagrams of the two types of commercial unit room coolers tested are shown here

heat absorbed was 27.2 per cent. The large magnitude of the dehumidification load is emphasized by the lower curve in Fig. 2, showing the rate of dehumidification, or the weight of water condensed out of the air in pounds per hour. It may be observed that the initial rate at the beginning of the test was approximately 5.0 lb. per hour, while the average rate for the entire test period was only 1.82 lb. per hour. As shown by the center group of curves in Fig. 2, this drying process substantially reduced the relative humidity of the air in all of the rooms on the first story. The average initial relative humidity of approximately 68 per cent was reduced to a value of 58 per cent at the end of one hour's operation and at the end of five hours' operation, it had attained a value of about 50 per cent. Since the dry bulb temperature remained constant the reduction in relative humidity also represented a reduction in moisture content, or the pounds of moisture present per pound of the air. The fact that during the operation of the cooling unit the moisture content on the second story remained constant indicated that the humidities in the rooms on the second story were also somewhat reduced by the dehumidification accompanying the cooling on the first story, since it was observed on other days that when the cooling unit was not operated a gradual increase in the moisture con-

DRAFT-O-STAT



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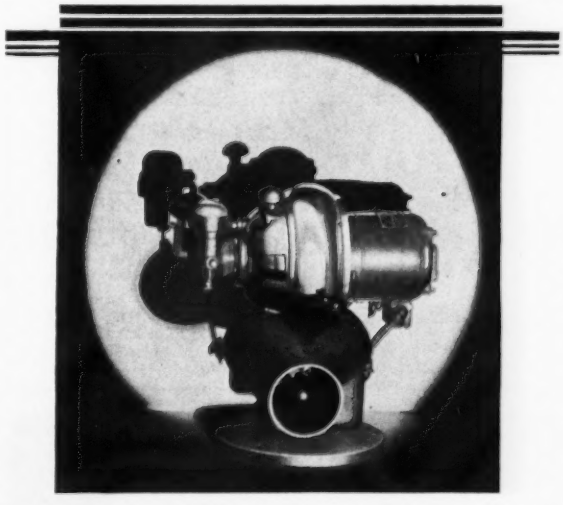

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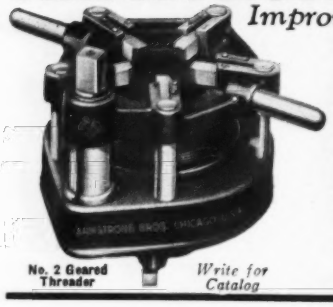
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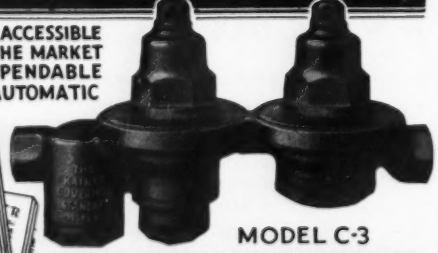
MODEL C-3
KAINER & COMPANY
761 MATHER ST., CHICAGO, ILLINOIS

tent of the air on the second story always occurred during the day.

General Summary: Although these tests indicate that a unit room cooler can be successfully adapted to cool from one to three rooms on the same floor of a residence, it is probable that the most economical method of cooling would be to operate such units in conjunction with a fan unit for the purpose of introducing cool night air into the rooms or house. It would be feasible, for instance, to locate the cooling unit on the first story of a two story house and operate it during the afternoon and evening, while the second story rooms would be cooled at night by introducing night air through the open windows.

The advantageous features of portability and lower initial cost of a unit similar to unit *A* are somewhat offset by the inconvenience of having the entire unit in the living quarters. It would probably be preferable to locate the unit in the basement and attach a short duct system from the outlet of the unit to a register on the

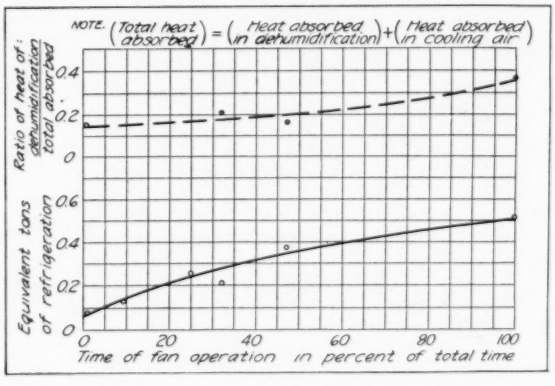

Fig. 5—Performance curves for Unit A are shown in this chart

first story, thereby avoiding the necessity for servicing the unit in the living portion of the house.

Adequate insulation of the ice storage compartment in all types of units is very essential for the minimization of standby losses. The cooling load during the summer was extremely variable with the weather conditions fluctuating rapidly, and oftentimes it was found that after the ice storage tank was filled, very little cooling was necessary due to sudden temperature changes outdoors. Under these conditions standby losses become expensive if any appreciable ice meltage takes place between operations. With units similar to type *B*, it is essential that all pipes carrying relatively cold refrigerants be thoroughly insulated.

The matter of noise of mechanical parts and of air motion is extremely important, and great care should be taken in the design and installation of any unit to reduce these features to a minimum.

Conclusions: The following conclusions are applicable to the conditions under which these tests were made:

1. Unit room coolers should be operated and controlled to maintain a constant dry bulb temperature in the room, rather than to maintain a complex schedule of indoor temperatures varying with the outdoor temperature.

2. Unit room coolers, similar to units *A* and *B*, can be successfully adapted to cool from one to three medium sized rooms on the same floor of a residence.

3. A unit cooler of 300 lb. ice capacity and having a

melting rate of approximately 20 lb. of ice per hour would be adequate to handle the normal cooling requirements of a medium sized first story room of a residence for most summer days, if no outdoor air other than that which occurs by natural infiltration is introduced for ventilation. However, if the occupancy of the room is to be more than two persons it is essential that additional capacity be supplied for the necessary ventilation required to reduce undesirable odors.

4. The initial ice melting rate, or the melting rate during the first hour after the unit was started, was nearly twice the value of the normal melting rate.

5. Of the total amount of heat absorbed by the unit coolers, approximately from 16 to 38 per cent was absorbed in the dehumidification process.

6. In addition to the lowering of the dry bulb temperature the relative humidity of the air in the rooms was, in most cases reduced about 15 points after three or more hours of continuous operation of the units.

7. Although not centrally located on the first story of the residence, the cooling units operated in the living room effectively cooled and dehumidified the air in the adjoining rooms and there was some indication that the reduction in relative humidity extended to the second story.

8. With unit cooler *B* located in the living room and all interconnecting doors on the first story open, the maximum deviation of the breathing level temperatures in any room on the first story from the mean temperature of the entire first story was 2.1 deg. Fahr.

(Conclusion)

Trouble—

(Continued from Page 84)

very easy to reverse a three-phase motor accidentally. This fact was impressed on me a short time ago by an incident which occurred in an electric foundry where heaters were used, similar to the one shown in Fig. 4. These heaters had three-phase motors and were supplied by a small separate transformer that drew its current from a large transformer which also supplied the current for the electric furnaces. All other equipment in the plant was supplied separately. Something happened to the large transformer so that it had to be replaced, and when the change was made, two of the wires were interchanged or reversed. This change made no difference in the electric furnaces, and no one thought about the heaters. They soon noticed, however, that their heating system was not working as well as it had been. Still, no one suspected what was wrong until one of the motors burned out. Then they discovered that the unit heater motors had been running backwards. When the motors were reversed, the heating system functioned properly once more. The rotation of the unit heater motors is frequently checked now in this plant.

Odors Studied for Air Conditioning

Studies presented at the Buffalo A. S. H. V. E. meeting showed a definite relationship was found to exist between intensity of body odor in the air of an occupied space and quantity of fresh air supplied, by confining human subjects in an airtight box and smelling the air coming out of the box.

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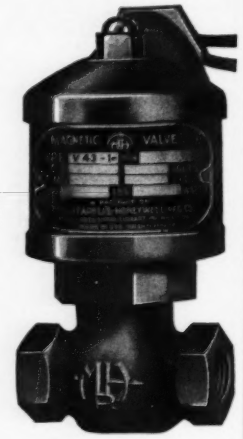

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University of California Dean Predicts Big Stride in Home Air-Conditioning

As the auto has emerged from the luxury class to that of necessity, air conditioning of homes in hot weather is fast progressing to the point where owners will be willing to spend as much for cooling in summer as for heating in winter. This prediction was made by Dr. B. M. Woods, chairman of the department of mechanical engineering in the University of California, at the annual Rural Short Course at the Branch of the College of Agriculture, in Davis, Calif., recently.

Cooling of public buildings and some homes now corresponds to the few stretches of pavement found in the early history of the motor car, Dr. Woods said, adding: "Conservative and thoughtful men all over the country are prophesying rapid development of air conditioning for residences." Two hundred inquiries have been received recently at the University bearing on this subject, which indicates its wide, popular appeal, especially in points throughout the Sacramento and San Joaquin valleys where extremely high temperatures are recorded for from four to six months every year.

Commercial installations of air conditioning equipment in the central valleys of California, the speaker said, have shown an approximate equality between the cost of summer cooling and winter heating. With the development of the newly born industry, he believes, will come increased production and standardization of equipment, and their natural running mate—reduced costs.

Dr. Woods presented seven systems of air conditioning for residences, covering practically all conditions of operation in ordinary homes. He also discussed the advantages of these systems under given circumstances, and their operating costs.

Short Course in Coal Utilization

The College of Engineering of the University of Illinois, through its Department of Mining and Metallurgical Engineering and Department of Mechanical Engineering, will offer another short course in Coal Utilization at Urbana on June 11, 12, and 13, 1935. The registration at last summer's short course was 146, and included men from states as far distant as Utah, Alabama, South Carolina, and Pennsylvania. There will be no charge for tuition or registration. The program is now being prepared and will probably be announced by April 1st.

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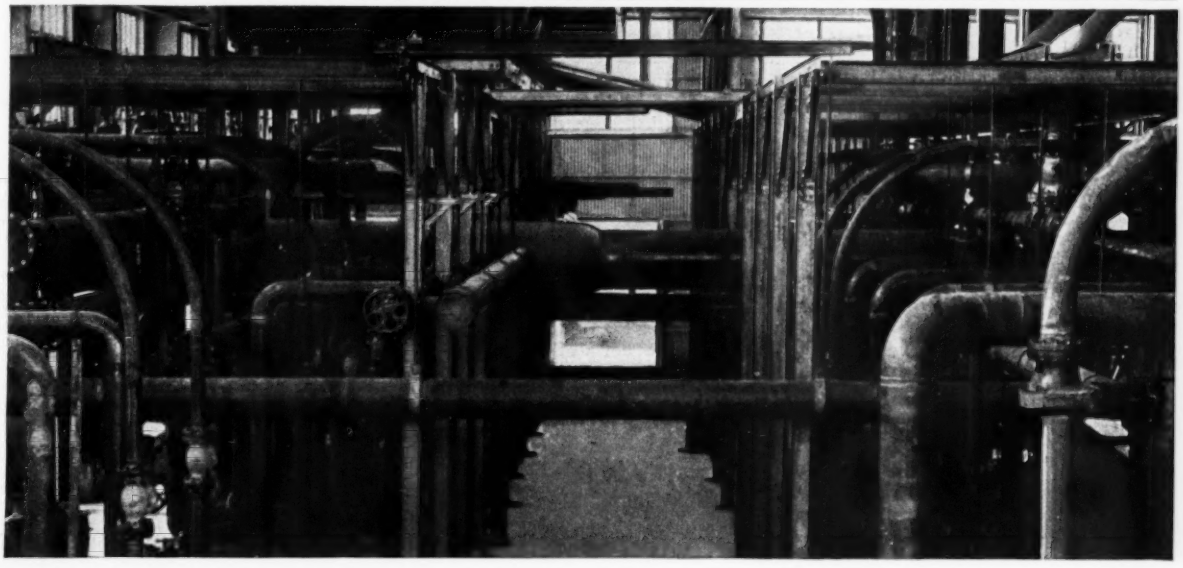

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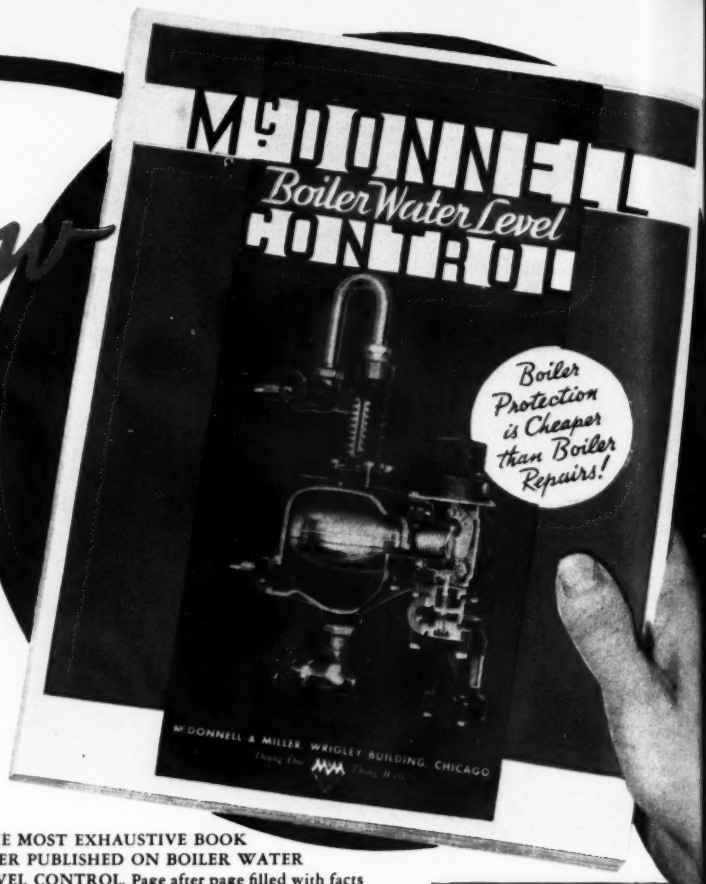
- WHAT is necessary in a feeder or cut-off to conform to all code recommendations?
- WHY feeders are located for best results to operate only when the boiler water level falls below one inch in the water glass?
- WHERE a low water cut-off should operate in relation to a boiler feeder?



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This CATALOG HOLDS THE ANSWERS *to these and hundreds of similar questions*

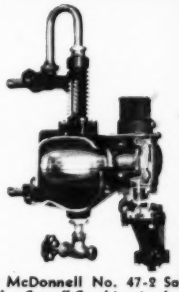
THE cream of all that we have learned about boiler water level control during eleven years of "Doing One Thing Well" is presented in the twenty-four pages of this new catalog.

Why boiler water level control pays—what many years of specialization have accomplished—the basic principles of boiler feeder design—complete service recommendations, installation data, wiring diagrams, and almost every conceivable point that ever arises in connection with boiler water level control is exhaustively covered in these pages.

Read this catalog and you know the whole story of Boiler Water Level Control—every reason for using it—every fact about applying it. The man who thoroughly knows his subject, automatically becomes a good salesman—and the man who reads this catalog will know boiler water level control backward and forward. *Write for your copy today.*

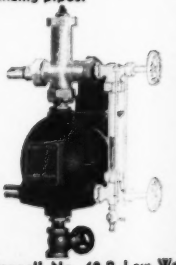
McDONNELL & MILLER, 1306 Wrigley Building, Chicago

"Doing One Thing Well"



The McDonnell No. 47-2 Safety Feeder-Cut-off Combination for oil-fired boilers under 5,000 square feet capacity. For installation in gauge glass tappings.

McDonnell No 51-2 Safety Feeder-Cut-off Combination for oil-fired boilers above 5,000 square feet capacity. Installed with 1-inch equalizing pipes.



McDonnell No. 60-B Low Water Cut-off for gauge glass installation on oil-fired boilers of any size. Also furnished for installation with 1-inch equalizing pipes as No. 60-A.

YOUR JOBBER STOCKS THEM

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McDonnell & Miller, 1306 Wrigley Bldg., Chicago
Please send me a copy of your new catalog:

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McDONNELL *Boiler Water Level* CONTROL

SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Central Supply Association Sets Dates for Spring Meeting

At the meeting of the executive committee of the Central Supply Association held in Chicago, February 20, it was decided to hold the spring meeting of the association in Chicago on April 24 and 25. The meeting will be held at the Morrison Hotel.

W. B. Young Supply Co. Opens Branch in Joplin, Mo.

W. B. Young Supply Company of Kansas City, Mo., on February 9th opened a branch house at 315-317 West Thirteenth Street, Joplin, Mo. R. C. Ekstrom, who has been covering the Joplin territory, will be in charge of sales and Frank Houston, formerly with the Missouri-Kansas Supply Co. of Kansas City, Mo., will be in charge of stock. The new branch will carry plumbing, heating, water works and well supplies.

Selling Plumbing and Heating in America's Second Market

Again the National Association of Master Plumbers offers the manufacturers of plumbing and heating materials an opportunity to display their products to the membership and to the public. The Exhibition Hall of the Convention Headquarters at the Stevens Hotel, Chicago, will be converted into what will probably be the largest display of plumbing and heating materials ever assembled under one roof.

In anticipation of a record-breaking exhibition, prices for display space have been reduced 22½ percent below last year's Washington Exhibition levels. A vigorous and attention-compelling publicity and advertising campaign has been worked out, and it is anticipated that the public attendance record will be broken for all time.

For $125 a manufacturer can make a tasteful display of his products in an Exhibition Hall that has housed some of the most extensive and distinguished industrial exhibits.

Sixty million people live within a day's ride from Chicago. It is a city which has lived through the depression with less pangs than any other city in the country. The diversified industries of Chicago have made it possible for the city to take advantage of any upswing in any line of business.

To the Chicago home owner "I will" means that he will modernize his home—$4,000,000.00 has been borrowed from Governmental lending agencies for modernizing in the Chicago area. To the apartment house owner "I will" means that he will bring his apartments up to date with modern plumbing and heating.

To this second market in America, the N. A. M. P. invites all manufacturers of plumbing and heating materials who believe that the master plumber affords them the best outlet for their products. The dates are June 24 to 27, inclusive. The place is the Stevens Hotel.

Keeney Mfg. Co. Increases Capital Stock

Keeney Manufacturing Co., Newington, Conn., has filed notice of an increase in capital stock from $50,000 to $150,000. An issue of 4,000 shares of stock par value $25, makes up the increase.

Will Manufacture Heating Specialties

The American Appliance Company of New Haven, Conn., has been incorporated with a capital of $50,000, to manufacture heating specialties. The incorporators are: Arthur L. Parmelee, West Haven, Conn.; Robert B. Dodds, Jr., and D. G. Robbins, both of New Haven, Conn.

Plumbers & Factory Supplies Inc. Enlarge Sales Force

E. O. Garrett, president, and A. W. Reynolds, treasurer, both of the Plumbers & Factory Supplies, Inc., of Columbus, Ohio, have just announced the appointment of H. T. Fowler, Jr., as special representative in their industrial sales department, and Arthur Kramer as special representative in the sales and purchase department. Both Mr. Fowler and Mr. Kramer have had many years' experience in this field. Edw. S. Bolen was recently made manager of this company's industrial department, and J. W. Van De Grift of Dayton was appointed general accountant.

Offers Prizes to Stimulate Plumbing and Heating Remodeling

To encourage interest in home modernization, *The Home Desirable*, a home owner's magazine distributed by plumbing and heating dealers and by Crane Company, Chicago, has announced a contest for photographs of remodeling jobs which embrace plumbing and heating. The prizes total $250. First prize is $100; second prize, $50; third prize, $25, and there are fifteen $5 prizes.

Entrants need only submit "before" and "after" photographs, together with a written explanation of the modernization. Everyone is eligible except plumbing and heating dealers and employees of Crane Company and *The Home Desirable*. Modernization need not be elaborate in order to qualify. The photographs can be taken by the owner or any other person.

Entry blanks may be obtained from plumbing and heating dealers who collaborate in publishing *The Home Desirable* or by writing directly to the magazine at 221 North La Salle Street, Chicago. Dealers may secure information on the contest from L. R. Varney, Crane Company, 836 South Michigan Avenue, Chicago.

Many Manufacturers to Show Plumbing and Heating Goods at Better Homes Exhibit

The Better Homes Exhibit in the Straus Building, Michigan Avenue and Jackson Boulevard, Chicago will be held from March 15th to May 15th. Nationally known manufacturers are evidencing great interest in the event, and a number of firms which exhibited at a Century of Progress have arranged to display the latest contributions to the modern home. The exhibit is being sponsored by the Chicago Committee, Better Housing Program, of which Howard J. White is chairman. It will be open to the public every day for a two-month period and there will be no admission charge. Among the firms in the plumbing and heating line which will exhibit are: the American Radiator Company, Chicago Oil Burner Association, James B. Clow & Sons, Crane Company, and the Standard Sanitary Manufacturing Company.

Fairbanks, Morse & Co. New York Branch Wins "President's Cup"

Fairbanks, Morse & Company of Chicago recently gave a dinner at the Lexington Hotel in New York City in honor of the personnel of their New York Branch House, at which a beautiful silver cup was presented to T. W. Drennen, manager of the New York Branch.

Each year, Fairbanks, Morse & Co. give a silver trophy, known as the "president's cup," to the branch house doing the best job of selling for the year ended. For the year ending 1933, the Cleveland Branch House won the coveted honor and for the year just passed, the New York organization was the winner.

In addition to incorporating on the cup the name of the winning branch house and the branch house manager, there is also engraved thereon the name of the salesman of the winning branch house most responsible for the volume of sales for the house. This year, Henry E. Vogel of the railroad department, New York, was the man so honored.

At the dinner, several officials from the main office in Chicago were present including the following: Colonel Robert H. Morse, president; A. C. Dodge, vice president; F. H. Dickson, manager of Diesel Sales; W. T. Watt, manager of advertising, and Henry J. Barbour, manager of sales promotion.

Other guests included A. L. Decker, of Henri, Hurst & McDonald; L. B. Jackson, manager of Fairbanks, Morse Boston Branch, and R. E. Post, Manager of the Washington office.

Colonel Robert H. Morse presenting T. W. Drennen, manager of the New York Branch with the 1934 President's Cup. From left to right: R. H. Morse, president; Henry J. Barbour, manager Sales Promotion; Henry E. Vogel, representing the New York Branch salesmen, T. W. Drennen, manager New York Branch, and A. C. Dodge, vice president, Fairbanks, Morse & Co.

Will Move Branch House in Hutchinson, Kan., March 1

W. B. Young Supply Company of Kansas City, Mo., will move its branch house in Hutchinson, Kans., from Second Street and Cleveland Avenue to 313 South Washington Street, where it has secured a long term lease and in addition to the building leased will erect a new building to serve its customers to the best advantage. The removal will take place on March 1.

Agnew & Tomlinson Will Continue Business

Kenneth G. Agnew and Clifford T. Tomlinson have just announced the resignation of Louis E. Pelletier from the firm of Agnew, Pelletier & Tomlinson at 507 Fifth Avenue, New York City. The business will be continued as heretofore at the same location but under the name of Agnew & Tomlinson.

Consolidated Brass Company Elects Officers

The board of directors of the Consolidated Brass Company of Detroit, Mich., held its annual meeting recently and elected the following officers: President, Clarence C. Mosack; vice president, George H. Kirchner; secretary and treasurer, Anthony Bodde; assistant secretary and assistant treasurer, Frank R. Leffler; chairman of the board, Homer D. Coleman, who retired as president.

Mr. Mosack has been identified with the company for more than sixteen years. Prior to this he was connected with the American Lubricator Company before the merger with the Sterling & Skinner Manufacturing Company, acting in various positions throughout the plant.

NRA Puts Gas Piping Under Code

A recent decision by the deputy administrator of the NRA affects gas companies doing plumbing work ahead of the meter. In this decision, given by Robert N. Campbell, the ruling was made that "the installation of plumbing equipment is under the code if it is done for profit or hire. In the instant case, the installation, if not done for hire, in our opinion is done for profit, inasmuch as the company is compensated for the work indirectly through the sale of gas. Reference is made to Herbert vs. Shanley Co., 242—U. S.—591, which is in accord with this ruling.

"Since the company is subject to the code, it is therefore necessary that it comply in all respects with the code provisions."

Electric Sprayit Co. Merged with Moe-Bridges Company

The Electric Sprayit Company of South Bend, Ind., has been consolidated with the Moe-Bridges Company of Milwaukee, Wis., and a new Wisconsin corporation known as the Moe-Bridges Corporation, headed by S. Deutsch, has been formed to take over the assets, manufacturing facilities and personnel of the previous organization, which will be rapidly expanded in its present and adjacent quarters at 220-228 North Broadway, Milwaukee, Wis., where the products of the Electric Sprayit Company also will be manufactured.

Associated with Mr. Deutsch, the president of the Moe-Bridges Corporation and its predecessors, are: Walter Buettner, vice president of the Bendix Corporation of South Bend, Ind.; Geo. C. Miller, president of Dodge Mfg. Co., Mishawaka, Ind.; L. F. Smith, treasurer of the Electric Sprayit Co., South Bend, and C. A. MacDonald, president of the MacDonald-Cook Company of South Bend, Ind.

N. Y. Wholesalers Give Bachelor Dinner in Honor of Mortimer H. Smolka

Mortimer H. Smolka

Owing to the fact that Mortimer H. Smolka of the E. Smolka Plumbing Supply Company of New York City was scheduled to leave the ranks of the bachelors in February, his many friends in the wholesale plumbing industry in New York City gave a bachelor party in his honor on Thursday evening, January 31st, in the Louis XVI Room, Hotel Taft, New York City.

In the party were ninety men from every branch of the industry, including manufacturers, wholesalers, manufacturers' agents, master plumbers, members of the trade press, etc.

Seated at the head table were Mortimer H. Smolka, Milton M. Goldsmith, Morris Jarcho, Edw. H. Blywise, Dr. Leo Michel, Edw. F. Keating, Leo M. O'Neil, Geo. Herth and John Weil.

Milton M. Goldsmith, vice president of Sam S. Glauber Co., acted as toastmaster in a most happy vein, which contributed much to the gaiety of the event.

Robert Smolka, secretary of Sam S. Glauber Co. and Mortimer Smolka's uncle, delivered a neatly worded speech of congratulations and closed by presenting his nephew with a special gift.

Morris Jarcho was the next speaker and he also delivered a well-worded address of congratulation.

On behalf the assembled friends Milton M. Goldsmith thereupon presented Mortimer Smolka with two excellent traveling bags.

Mortimer Smolka responded to the speeches and the presents in a most happy and genial vein.

Following the dinner the party was treated with two excellent floor shows. The first was introduced by Nick Kenny, a radio column conductor, who introduced the pick of the "Radio Children of the Air," whose program consisted of songs and dances, and they made such a hit that the guests were reluctant to let the performers depart.

The second show consisted of adult performers, and their contributions to the night's entertainment were also greeted with deserved applause.

It was quite late when the party came to an end, but before leaving every member of the party congratulated Mr. Smolka on his approaching marriage.

The committee in charge of the affair was composed of Jos. Ward of Kohler Co., Glenn B. Van Buren, secretary of the Jobbers Credit Association, and his assistant, Ben S. Zorwitz.

P. & J. Plumbing Supply Co. Ready for Business

The P. & J. Plumbing Supply Company has started in business at 421 Forty-Third Street, Union City, N. J. The proprietors of the business are Paul Schwartz and Jack Schwartz. Paul Schwartz was formerly connected with the Warren Plumbers' Supply Co., Inc., of Jersey City, N. J., and Jack Schwartz was with the Kam Water Heater Mfg. Co., Inc., of Brooklyn, N. Y.

Plumbing and Heating Club Opens 1935 Golf Season

The Plumbing and Heating Club of San Francisco held its first golf meet of 1935 on February 14 at the Merced Golf and Country Club. Winners were forced to shoot their best game, as competition was afforded by the better golfers of the club. After play, members retired to the club house for dinner and presentation of prizes.

R. J. Fuite with a 73 net was winner in Class A, while J. Hiel and W. P. Woodridge tied in Class B with a 77. The latter was selected to carry off Class B honors. Wm.

Bachelor party in honor of Mortimer H. Smolka, held at the Hotel Taft in New York City, January 31st

Scott, Jr., won the blind bogey prize, while R. P. Olsen took the "booby" with a gross of 114.

R. J. Fuite won the right to have his name inscribed on the "Church Trophy" which will be awarded to the player who leads in tournament wins. Jack Camp, president of the Master Plumbers Association, already has two victories and is conceded a fine chance to annex this cup.

The next golf tournament of the club will be held at the Burlingame Golf and Country Club in March.

The scorekeeper's record follows:

	G.	Hdc.	Net		G.	Hdc.	Net
C. Petersen	101	17	84	R. Hudson	113	19	94
M. B. Woodson	100	16	84	W. Derbyshire	92	14	78
Jack Camp	87	11	76	J. R. Steffens (Guest)	130		
R. P. Olsen	114	25	89	R. J. Fuite	87	14	73
W. R. Strickland	108	30	78	T. B. Mixter	91	10	81
C. E. Rowley (Guest)	113			W. Scott, Jr.	85	9	76
J. Hiel	94	17	77	W. P. Wooldridge	97	20	77
F. Chittenden	111	29	82				

Construction League Now in National Press Building

The Construction League of the United States on February 1, 1935, moved its offices to the National Press Building, Washington, D. C. This League has been particularly active since the placing of so many N. R. A. codes of different branches of the building industry, under the general grouping of the construction industry. The League formerly had its headquarters at 1741 New York Avenue, N. W.

Standard Plumbing Supply Company Holds Annual Dinner Meeting

The Standard Plumbing Supply Company of Boston, Mass., held its annual dinner and goodwill meeting at the Boston Chamber of Commerce on Wednesday evening, February 6th. Among those in attendance were many plumbing contractors and manufacturers of plumbing goods.

The chief topic of discussion after the dinner was centered around the Federal Housing Act and its opportunities for the plumber.

Louis Dvilnski, treasurer of the Standard Plumbing Supply Co., was master of ceremonies and introduced the following guests: Leo Rose, president of the Master Plumbers Association of Boston and Vicinity; Mr. Swensen, chairman of the Boston Code Committee; Leon R. Graves and Wm. C. Redfield, both of American Radiator Company, and Dick Lane, manager of the Boston Branch of Standard Sanitary Manufacturing Company.

President Rose discussed the value of association work, building of membership and the great benefit that can be derived by close co-operation of master plumbers with officers and brother members of plumbers' associations.

Mr. Swensen discussed certain specific regulations as incorporated in their code and explained in detail the operation and maintenance of "bid depositories."

Mr. Graves and Mr. Redfield outlined new methods and ways of obtaining new business for the plumber by utilizing the opportunities of FHA.

Dick Lane told how his company's policy made it possible for the plumber to meet cut-rate competition.

Metropolitan Plumbing Supply Jobbers to Hold Dinner Dance

Metropolitan Plumbing Supply Jobbers' Association, Inc., will hold its annual dinner and dance on Saturday evening, March 9, in the Grand Ballroom of the Hotel New Yorker in New York City.

This Association is composed of wholesalers in Greater New York, including the five boroughs, and Westchester and Long Island.

Members of the Association and their friends as well as many representatives of manufacturers will attend this affair. The slogan for the dinner is: "Mr. Manufacturer, shake hands with Mr. Wholesaler; Mr. Wholesaler, meet Mr. Manufacturer."

The officers of the Association are: Michael W. Tomback, president; Dan Gottlieb, vice president; Benjamin Meyers, treasurer, and Sol Napolsky, L L. B., secretary.

Radiator Specialty Co. Entertains Bronx Master Plumbers

An interesting and instructive meeting was held Wednesday evening, January 31, at the headquarters of the Master Plumbers Association of Bronx, N. Y., sponsored by Radiator Specialty Company of Charlotte, N. C., and attended by approximately 100 members of the Bronx Association.

The meeting was in charge of P. J. Duggan and J. E. Burns, both of the Radiator Specialty Company, who explained the use of this concern's products.

Following the business meeting, refreshments were served.

Door prizes were awarded to Bernard Kan, Charles Muller, Ellis W. Peetuk and Ed. Perrone.

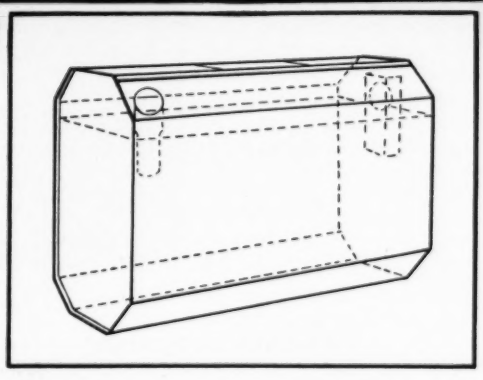
Now in New Locations

Economy Specialty Corporation, manufacturers and distributors of plumbing specialties, have moved their warehouse and offices to 194 Mercer Street, New York City.

New York Air Valve Corporation of New York, N. Y., has announced the removal of its business from 476 Broome Street to 611-621 Broadway, corner of Houston Street. The transfer took place February 1st.

The annual dinner of the Standard Plu mbing Supply Company of Boston, Mass.

Designed for Longer Flow...
The MASTER SEPTIC TANK
Means Safer Disposal



Adequate Working Depth—Increased Capacity —More Thorough Treatment of Sewage

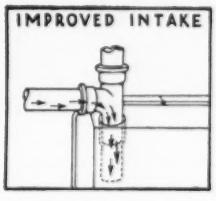
THE operating efficiency of the horizontal septic tank has long been recognized by sanitation engineers. But heretofore small horizontal tanks have not been practical because of the lack of working depth.

The shape of the new San-Equip Master Septic Tank now completely overcomes this handicap. With it you can offer your customers a safer, more dependable disposal system for their homes and camps.

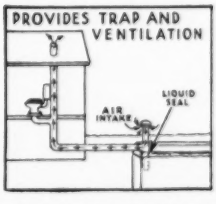
Other important advantages of this new tank are illustrated. Study them. Combined, they help you to overcome cut-price competition. These strong selling features are found in no other tank. At last, you can sell septics on a sound profit basis—not on price. At last, you can make the profit you deserve on septic systems. Easier to sell, install and service, the San-Equip Master Tank has been making more sales and more profits for plumbing contractors.

Ask your jobber to show you this new tank. Write us for further information. Get your share of the profits which this new tank is bringing in.

SAN-EQUIP INC.
503 E. Brighton Ave.,
Syracuse, N. Y.

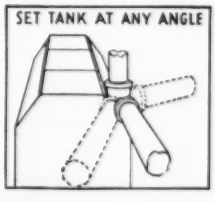


The top intake of the Master Septic Tank allows sewage to enter the tank more rapidly—tending to keep the intake baffle clear and effectively reducing the possibility of clogging at that point.

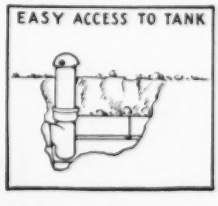


The intake T extends above ground to provide a fresh air intake to the house stack. It also extends below the liquid level in the tank to seal the line against escaping gases. No other trap or vent is required.

Excavation for the Master Septic Tank is but slightly larger than the tank itself. Thus installation is much easier and more economical than for a tank where lack of shovel room makes extra digging necessary.



Use of T-type intake allows tank to be set at any angle to house line. This simplifies installation where the space available or slope of ground limits location of tank and drainage field.



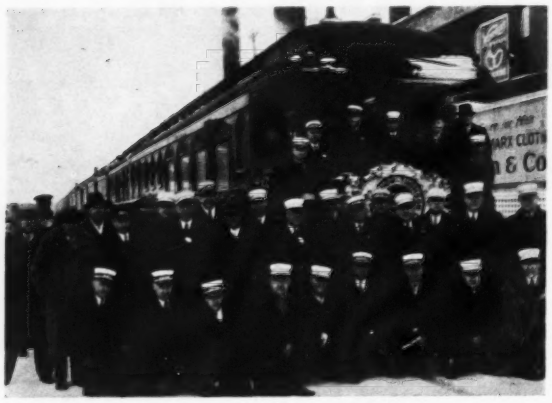
The intake extension above ground marks the tank location and also provides access to the intake baffle without digging. For inspection of the tank the sectional cover is easily removed without uncovering entire tank.

Sold through the Plumbing Trade Exclusively

San-Equip SEWAGE DISPOSAL

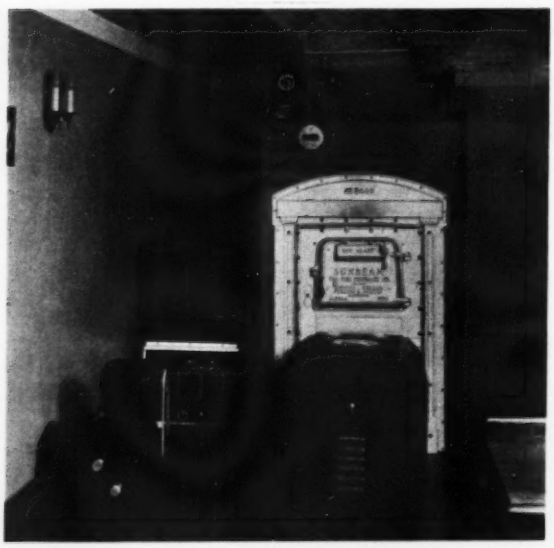
Kelley-How-Thomson Company's Train Stops at 55 Cities

The Kelley-How-Thomson Company of Duluth, Minn., recently sent a special train of progress through the Northwest. This was the second annual tour of this kind and the train covered 3,800 miles with stops at 55 cities. The train



Rear View of the Kelley-How-Thomson Co.'s Train of Progress

consisted of one locomotive, one dynamo car, one dormitory car, one day coach, one observation car, one diner, three pullmans, and seven baggage cars which contained the exhibits consisting of the latest developments of many manufacturers. One of the cars that attracted most attention on the trip contained a model home exhibit which you entered through a small front porch, and it had a living room completely furnished including a fire place, a kitchen, a bathroom, and a recreation room or basement in which a small



View of the Heating Equipment in the Model Home on the Kelley-How-Thomson Company's Train

stoker was installed in a furnace equipped with a blower and with air ducts for the proper distribution of heat. This complete set-up was in actual operation and was the only source of heat used in this car.

Twenty representatives of Kelley-How-Thomson Co. and 45 manufacturer's representatives were aboard. Among the manufacturers represented were Black & Decker Mfg. Co., of Towson, Md.; Fox Furnace Co., Elyria, Ohio; Whiting Corp., Harvey, Ill., and Eljer Co., Ford City, Pa.

During the trip, 77,541 persons visited the train.

Promotions and Changes in Thos. Devlin Mfg. Co's. Sales Force

Thomas Devlin Manufacturing Company of Burlington, N. J., has just announced the following promotions and changes in its sales force: G. P. Cartwright has moved his headquarters to Burlington, N. J., and will remain in charge of the company's national sales. Fred A. Fenton of the New York office has been made manager of that office and will be in charge of sales in that area, and J. Harry Petty has been added to the sales force of that office, while E. A. Mullins of 80 Broad Street, Boston, Mass., was recently appointed New England representative.

Obituaries

Robert Andrews

Robert Andrews, president of the Andrews Lead Company of Long Island City, N. Y., died January 31st at his home in Stamford, Conn.

William G. Spence

William G. Spence, for many years vice president of the Rundle Spence Mfg. Co., Milwaukee, Wis., died recently at his home in that city at the age of 82. Mr. Spence retired from business in 1931.

William H. Carrick

William H. Carrick, one-time vice president and general manager of the Gurney Foundry Company, Ltd., Toronto, Canada, and former president and general manager of Gurney-Tilden Company, Ltd., Hamilton, Ontario, died at his home in Toronto on January 24th, in his 76th year. He retired from business in 1919.

Ernest T. Bros

Ernest T. Bros, vice president and general manager of the William Bros Boiler & Manufacturing Co., of Minneapolis, Minn., died Thursday morning, February 21, of a heart attack while in Cleveland, O., in his forty-third year. Mr. Bros is survived by his widow, a son, a daughter and four brothers.

Earl G. Watrous

Earl G. Watrous, president of Watrous Co., Chicago, died February 25 at Miami Beach, Fla., where he was spending the winter. Mr. Watrous was the inventor of numerous improvements in plumbing fixtures and he was formerly for many years connected with the Imperial Brass Manufacturing Co., of Chicago. His widow, two sons and four daughters survive him.

Charles W. Kirchhof

Charles W. Kirchhof, formerly president of the Bronx Master Plumbers' Association, died at his home in New York City on Friday, January 18, in his 62nd year. He was a son of William Kirchhof, one of the founders and partners of the plumbing firm of Kirchhof & Brown. After his father's death, Charles Kirchhof continued the business and took an active part in association matters.

His funeral was held at his home January 20 and was attended by many of the officers and members of the Bronx Association. His widow and a married daughter survive him.

In a Personal Way

LOUIS COOPER of Gerstein & Cooper Company at South Boston, Mass., is at the present time on a three weeks' vacation trip. His first stop was at Miami, Fla. From there he went to Nassau. Following this he will visit the Bahamas, Havana and Panama. During his stay in Havana, Cuba, he expects to call on plumbing and heating jobbers in that city.

J. A. Worsham

JAMES A. WORSHAM, whose likeness is shown herewith, was recently appointed general sales manager for the Decatur Pump Company of Decatur, Ill., as mentioned in this column last month. Mr. Worsham was formerly sectional sales manager for the Williams Oil-O-Matic Heating Corporation of Bloomington, Ill., and he is the author of many magazine articles on business management and an able public speaker.

GEORGE GORDON CRAWFORD, formerly president of the Jones & Laughlin Steel Corporation in Pittsburgh, Pa., has severed his connection with this company and has retired to his home in Birmingham, Ala., where he was president of Tennessee Coal, Iron & Railroad Company prior to February 1930, when he became president of the Jones & Laughlin Corp., an office he held until May, 1934, when Samuel E. Hackett succeeded him. Since that time Mr. Crawford has been retained in an advisory capacity.

EARL K. WILLIAMS has been appointed sales representative for the Detroit Brass & Malleable Works of Detroit, Mich., to cover the New York Metropolitan territory. Mr. Williams will make his headquarters at the company's office at 280 Madison Avenue, New York City. This company's eastern warehouse was recently moved to 52-15 Thirty-Fifth Street, New York City.

GEORGE A. DRAUDE has been appointed domestic sales representative for the Permutit Company, manufacturers of water conditioning equipment in New York City, according to announcement by Oliver P. Harris, manager of domestic sales. Mr. Draude will make his headquarters at Rochester, N. Y., and will cover the north east part of New York state.

P. A. CELANDER, formerly with the Williams Oil-O-Matic Heating Corporation of Bloomington, Ill., has accepted a position with the Herman Nelson Corporation of Moline, Ill., where he has been placed in charge of product engineering.

C. C. SNYDER of the Central Alloy division of the Republic Steel Corp., Massillon, O., delivered an address before the Electro Chemical society in Cleveland on Monday evening, January 28, on the subject of "Stainless Steel as Applied to the Chemical Industries." Following his address, a motion picture film, "Making It Tough," was shown. This film depicted the making of alloy steels.

F. W. SWANSON of the Globe Machinery & Supply Company of Des Moines, Iowa, is at the present time on a combination business and pleasure trip through the East and the South. He is accompanied by his wife. While in Florida they will spend a few days at Lake Worth visiting Mr. Swanson's mother.

D. J. QUINN of the New York office of the Standard Sanitary Manufacturing Company has just been appointed manager of this company's sales office and showroom in Philadelphia succeeding Frank L. Wilson, who resigned. Mr. Quinn assumed his new duties on February 1st. He has been connected with Standard Sanitary Mfg. Co. for many years and has thus secured a large fund of experience and knowledge in the various phases of its business, particularly from a sales development viewpoint.

D. J. Quinn

KIMBALL BURR has just become associated with the Chicago branch office of American Radiator Company at 816 South Michigan Avenue to handle sales promotion and air conditioning. Mr. Burr was formerly connected with the Chicago branch of B. F. Sturtevant Co. of Boston, Mass., as contact man with Crane Company.

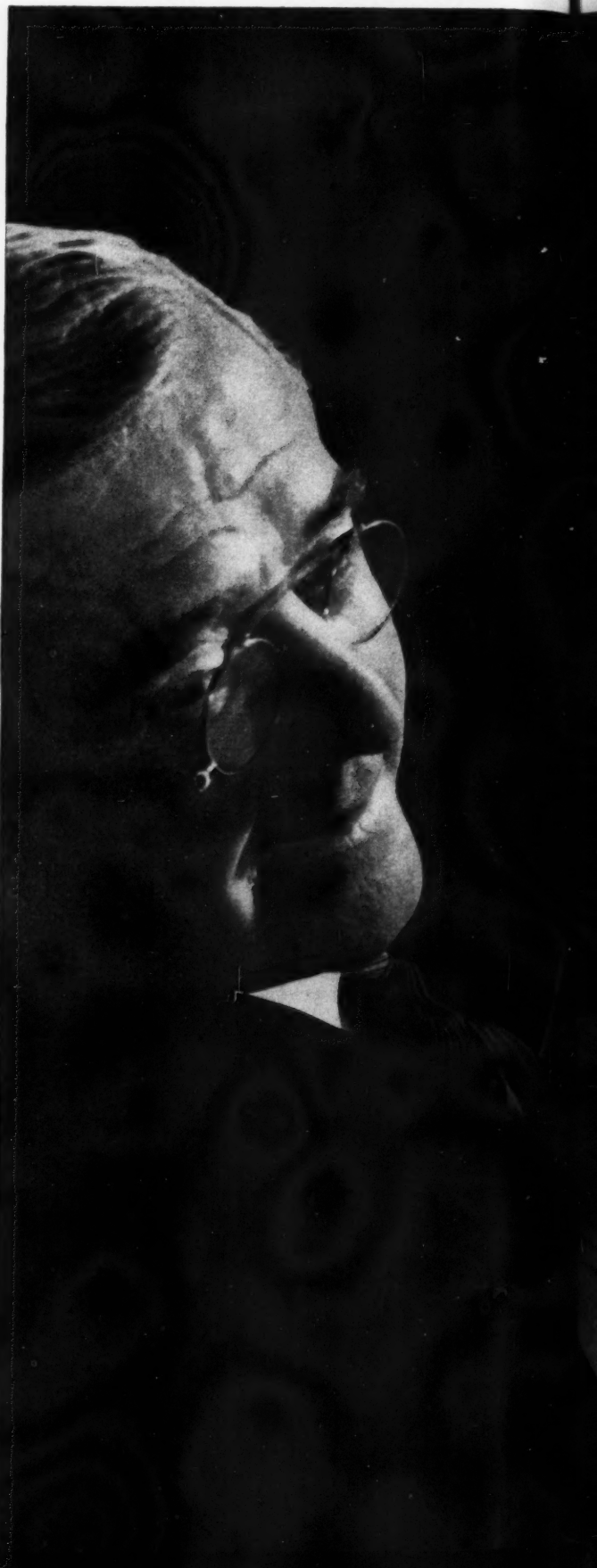
C. E. ANDERSON, sales manager for Leighton Supply Company, Fort Dodge, Iowa, who has been ill for some time, is on the road to recovery and will soon be at his desk again.

John Douglas Co. Conducts Tests on Toilet Bowls

The John Douglas Co., of Cincinnati, Ohio, on Monday, February 4, conducted several tests on its syphon-proof closet bowls, types A and B, at its laboratories in that city. The tests were made in the presence of a large audience. Among those in attendance were: W. W. Graham, of the Federal Emergency Administration, Washington, D. C.; Capt. A. R. McGonegal, Chief Plumbing Inspector, Washington, D. C.; Carl J. Kohler, of Kohler Co., Kohler, Wis.; Wm. A. Buck, Crane Co., Cincinnati, R. H. Zinkil, Crane Co., Chicago; Erwin Sohn, of Standard Sanitary Manufacturing Co., of Louisville, and H. O. Anderson, Sloan Valve Co., Cincinnati. The tests were begun at 10:30 in the morning and concluded at 3:30 in the afternoon, with a recess for lunch from 12:00 to 1:30.

Group Witnessing Tests in the John Douglas Co.'s Laboratories in Cincinnati, Ohio

"THAT HITS THE NAIL



ON SEPTEMBER 17, 1934, every Licensed Master Plumber in the country was placed in a position to meet all price competition. "Standard" made it possible for you to sell at prices that would meet competition and sell at prices established by yourself.

But even this price level was of no immediate benefit to you unless the great buying public was told about it. So "Standard" told the nation, in advertising appearing in the newspapers throughout the length and breadth of the land. Then followed additional advertisements which told about the Licensed Master Plumber—his importance and his great value to the home owners of America.

The response to this advertising was immediate and overwhelming! From all over there came a deluge of appreciation for the Licensed Master Plumbers of America. Our action had aroused the public... sales were speeded up... the plumbing business had started back to its rightful channel.

On the opposite page is a reproduction of the first of the series of 1935 newspaper advertisements intended to arouse an even greater interest in our industry—in your business and in our business. Read it carefully. It told a story which should appeal to every thinking American citizen. It marks the dawn of a new day for you and our entire industry.

This advertisement was published in the leading newspapers of almost one hundred cities from coast to coast and will be followed by others.

"Standard" is doing its part to bring the plumbing business back to its rightful channel—the Licensed Master Plumbers of the United States and the Distributors who supply them. You can do *your* part by going out after business—telling people about the F. H. A. terms—reminding your prospects that "Standard" Plumbing Fixtures cost no more than others.

CODE

Standard Sanitary Mfg. Co.

PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

ON THE HEAD . . .

Let's put the CHISEL away!

IT WAS a sad experience while it lasted! That little tool . . . the "chisel" was one of the most depressing instruments in the business world. No matter how good you made a product . . . no matter how well you served your customers . . . no matter how much value you gave for the money . . . there was always somebody around the corner with the chisel to offer "something just as good at a few cents less".

No reputable manufacturer ever believed the ability of his competition to produce costs. Usually, these so-called "bargains" were at the expense of quality, workmanship and labor. As a result, the buyer got no more than he paid for—and the whole nation paid the penalty in reduced incomes.

Now, the chisel should be put back in the tool chest! Every thinking citizen realizes that the future depends upon adhering to the principles of fair dealing. This is the purpose of the N. R. A. You can give your support by patronizing the members of our industry who support this government act.

Standard believes fair, open competition is the life-blood of industry but opposes the use of secret, destructive methods which strike at the very root of our democracy.

We believe the depression is over! Business is solidified, retained, rarin' to go! Your Government has confidence in you and the future. Your credit can be used through the National Housing Act up to $2000 for modernizing your property. You can install an extra bathroom, a new shower, a new Kitchen Sink or complete new Plumbing Fixtures right now and take as long as three years to pay for them.

Licensed Master Plumbers everywhere will be glad to arrange the complete financing of the installation and assure you skilled workmanship. And *Standard* Plumbing Fixtures maintain the same high quality of workmanship and material as heretofore, but cost no more than others.

Standard Distributors are ready to show you the wide variety of *Standard* Plumbing Fixtures in designs to meet your requirements. Visit the nearest showroom listed below. Then, ask your Licensed Master Plumber to tell you how little it costs and—how easily you can pay for modern plumbing on government-approved terms.

Standard Sanitary Mfg. Co.

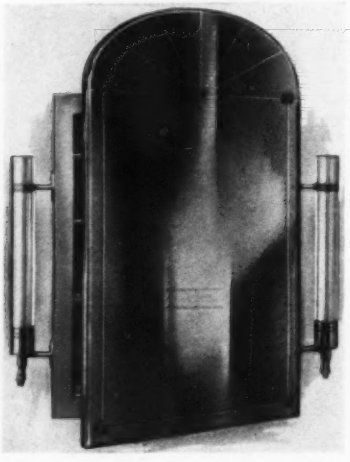
Pittsburgh, Pa.

Division of American Radiator & Standard Sanitary Corporation

NEW STORE·SHOP and JOB ITEMS

Bathroom Mirror Designed for Proper Lighting

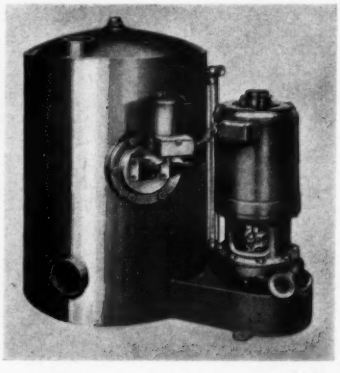
A new type of bathroom cabinet designed especially to provide proper light for the bathroom mirror is shown in the accompaning illustration. Outstanding features claimed for this cabinet are: modern design; correct lighting principles by throwing light on the object itself; freedom from glare; no shadows, and true reflection of the object. The cabinet, which has a mirror 20 x 32 inches, is a complete



unit in itself and includes a light switch and a convenience outlet plug. With this equipment, no other lights are needed in the average bathroom, it is stated. The Conant Bros. Company, 21 Vine Street, Somerville, Mass., is the manufacturer.

Condensation Unit Announced

The accompanying illustration shows a new condensation unit which has just been placed on the market. This unit is described as being fitted with bronze impellers of the enclosed type. It is made so that by merely removing a few cap screws, the motor and the motor bracket (or inboard head of the pump) may be raised, thus completely exposing the impeller for the purpose of giving ready access to the pump casing. The design is such that there are no pump bearings to require lubrication, no coupling is used, and there is only one stuffing box. The motor driving the pump is said to be of standard manufacture with a specially machined end bell. The manufacturer calls attention to the fact that if it should be necessary to make a motor replacement, such replacement can be made from local motor stock, with the idea of eliminating delays and saving expense, the only necessity being to transfer the special end bell to the new motor. Receivers are described as being built of steel with all joints welded with the idea of making them absolutely steam and water tight. They are regularly fitted with a high and low inlet opening, a top vent and a bottom drain opening as well as with a glass water gauge. Automatic operation is accomplished by means of a float and float switch. The float is designed to close the switch and start the pump motor when a predetermined high level has been reached in the receiver, and to open the switch and stop the motor when the pump has drawn the water level down to a predetermined low level in the receiver. The float switch is designed to start and stop the motor up to 1½ h. p. single phase, 110 volt; 3 h. p. single phase, 220 volt; 5 h. p. two and three phase, 250-550 volt; and 2 h. p., 115-230 volt, direct current. The manufacturer is the American Steam Pump Company, located at Battle Creek, Michigan.

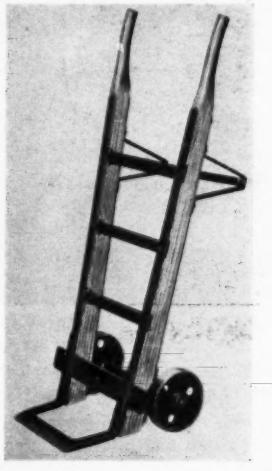


New Hand Truck Placed on Market

The hand truck shown in the accompanying illustration, has just been placed on the market. The wooden frame is described as being reinforced both front and back with steel straps extending the full length of the handles. The cross bars, both curved and straight, are channel-shaped pressed steel and are made to fit into rabbeted depressions in the top of the handles to which they are bolted. Lock washers are used throughout. The nose iron in the truck is described as being placed over the handle straps, with the idea of developing strong construction and of facilitating the replacing of the nose iron. The wheel guards are of the continuous type and integral with the lowest cross bar. At this point the resistance to buckling is not dependent upon the

cross bar, as the axle is placed immediately back of the cross bar and serves as a brace to the truck frame. Oversize axles of high-carbon steel are used for the purpose of adding materially to the truck's strength.

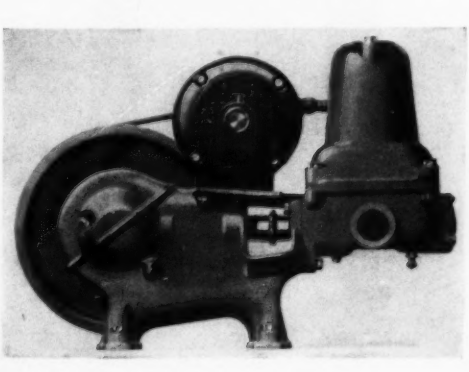
It is described as having convex shaped leg irons, well braced; wheels slightly crown-faced, for easy operation and for eliminating damage to floors, by preventing the edges of the wheels gouging into the wood or concrete. Another



advantage listed for the crown type of wheel is that it reduces the possibility of the wheel chipping. The trucks can be furnished with rubber tired, roller bearing wheels for the purpose of eliminating noise. The Fairbanks Company, located at 393 Lafayette Street, New York City, is the manufacturer.

Shallow Well Pumps and Water Systems

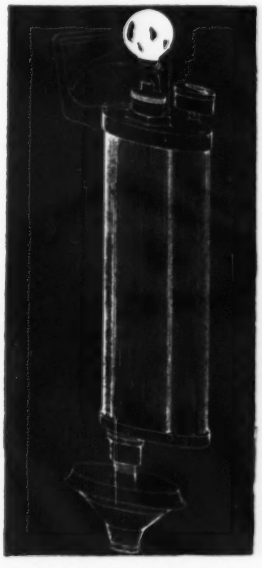
A new line of shallow well electric and gasoline engine driven pumps and water systems (see accompanying illustration) has just been placed on the market. The line is introduced by the convertible shallow well models, ranging



from 250 to 600 gallons capacity, designed to fit the requirements of homes, farms, schools, service stations, dairies, etc. The entire line is designed with an eye to simplicity through standardization and interchangeability of parts. The AC motors are of the repulsion induction type, and the DC units are of the compound wound type. The automatic starting device uses a patented arrangement for short circuiting all the commutator bars after the motor has reached approximately 75 per cent of its rated speed. The power end used is standard for all models requiring only a change in the motor to fit the capacity of the pump. Water end casings are also standard for all models, providing conversion at low cost from one capacity to another after the pump is in service. Sta-Rite Products, Inc., Delevan, Wis., is the manufacturer of this equipment.

An Improved Air Pressure Pipe Cleaner

The accompanying illustration shows an air pressure pipe cleaner which is designed to clean pipes without chemicals, snakes or rods. The pump is capable of devel-



oping 125 pounds of air pressure and, according to the manufacturer, will open blocked drains, traps, sinks, toilets, bath tubs or urinals, including up to a 6-inch sewer. The pump cylinder is of heavy brass tubing, heavily nickeled. The pump is equipped with a special handle and automatic gun type trigger. All fittings are brass. The hose is standard for compressed air use. Various accessories may be had to meet different situations. This improved pipe cleaner is manufactured by the C. J. Smith Manufacturing Company, 43 East Ohio Street, Chicago.

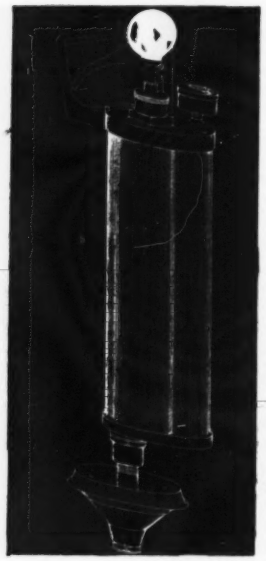
Steel Cabinet for Installation in Kitchens

The accompanying illustration shows a steel cabinet designed to fit under regular type kitchen sinks. Items needed daily around the sink, such as dish pans, soap powders, cleaners, mixing bowls and vegetable boards can be stored handily, yet out of the way when not in use. The cabinet is of all-steel construction. There is free access of air to all parts of the cabinet, thus preventing dampness. These cabinets are available in 42 inch size and 60 inch size. When installing, the sink is hung on the wall in the ordinary manner and the cabinet is placed underneath and

THE SMITH drain gun

Removes any complete stoppage

Eliminates the use of snakes, rods and chemicals



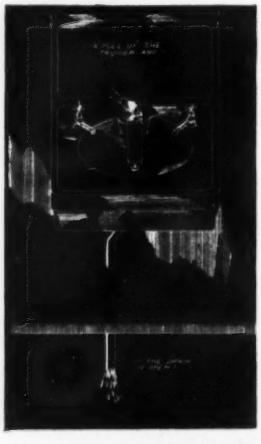
This tool will handle any job, flush-bowls, bath tubs, kitchen sinks, toilets, or waste-sinks; gas lines, oil lines, supply pipes, stacks and sewers up to 4". Cleans scale from hot water lines.

It will not only clean pipes but completely remove all waste. There is no sediment left in the pipe to catch new waste matter and start another stoppage.

With The SMITH Drain Gun in your repair kit, you can thoroughly clean slow-running bath tub drains; take the grease out of kitchen sink traps and remove the filth that accumulates in partially blocked lavatory drains. You are freed forever from the necessity of carrying space and time-wasting snakes and rods.

This tool is only 18" long. 4" in diameter and weighs only 8 lbs. Built of brass and bronze. Will last for years and pay for itself over and over again. Fully guaranteed.

Here's how it works



To remove a sink stoppage, take off the strainer plate. Run water until there is a solid column of water from stoppage in the pipe to the sink. Pump the gun up to 50 lbs. pressure. Place it upright in drain opening. Pull the trigger AND THE JOB'S DONE! NO STOPPAGE IS TOO STUBBORN FOR THIS TOOL.

It is a proven Plumber's tool. It is being used in hard service on all kinds of jobs, large and small. Many letters testify that IT DOES EVERYTHING CLAIMED FOR IT—AND MORE.

The SMITH Drain Gun may now be yours at a most reasonable price.

Equipped with (Fit-All Rubber Seat). LIST..... **$15.00**

Less 15% trade discount, or, each, F. O. B. factory..... 12.75

Send your order at once and earn our special offer of 5% cash discount allowance for C. O. D. shipment, or, remittance with order, ($12.11 each) net F. O. B. Factory.

PURCHASE PRICE REFUNDED IF THIS TOOL IS NOT ENTIRELY SATISFACTORY WITHIN 5 DAYS AFTER RECEIPT.

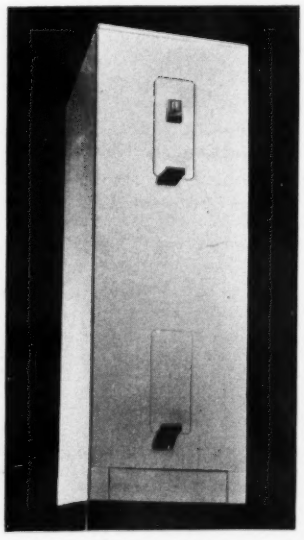
C. J. SMITH MFG. CO.

43 East Ohio St., Chicago, Ill.

raised under the rim to the proper height on adjustable legs, depending on whether a roll or apron type sink is used. The Standard Sanitary Manufacturing Company, P. O. Box 1226, Pittsburgh, Pa., is the manufacturer of these cabinets.

New Design for Water Heater

The accompanying illustration shows a new design of electric water heater which has just been placed on the market to harmonize with modern kitchens and the like. As indicated by the illustration, it has been developed with a square corner design, with a while baked-on enamel finish and a black enamel base. The electric heating units are made removable through the side of the tank. Another feature of this is that the tank is baffled to assure the correct mixing of cold water as it enters the bottom. The insulaton is described as being 3½ in. thick and is of the wool type. The water temperature control unit is of the snap action type and is made so as to be adjustable for the different temperatures desired. This equipment is manufactured only with a 40 gal. capacity and is of the plain storage type. Edison General Electric Appliance Company, Inc., located at 5600 West Taylor St., Chicago, Ill., is the manufacturer.



THE TRADE

News of what plumbing and heating contractors are doing the country over

President Calnan Announces N.A.M.P. Convention Plans

John J. Calnan of Chicago, president of the National Association of Master Plumbers, has just announced his tentative plans for the 53rd annual convention of this organization, as follows:

"The fifty-third annual convention of the National Association of Master Plumbers will be held in Chicago, June 25 to 27, inclusive, with the Stevens Hotel housing the delegates, the convention, and the exposition.

"While the details of the annual convention and exposition have not yet been worked out, many of the principal arrangements have been made and, under the general-chairmanship of President John J. Calnan, the other committees to be appointed to assist him will be announced shortly.

"The Stevens Hotel, the largest hotel in the world, on the shores of cool Lake Michigan, has been selected as the convention headquarters. Its three thousand rooms and three thousand baths will afford luxurious, and economical, facilities for the delegates who will come from all parts of the country. Its convention hall is without rival in the Middle West. Its exposition facilities, offering 40,000 sq. ft. of space, afford the most perfect setting for the exposition of plumbing, heating, and allied products that has ever been offered.

"The fifty-third convention will have the distinction of being held in its entirety under one roof, thus saving the usual trips between the headquarters hotel, the convention auditorium, and the exposition. The time thus saved can be used by the delegates to view some of the facilities offered by Chicago which are unique in the world. For instance: the Adler Planetarium is but a short walk from the hotel; the Marshall Field Museum is only a short distance away, and at the hotel's front steps is a large park. A special invitation is extended this year to delegates to bring their children, as the Stevens has a fully equipped nursery, in charge of a competent personnel, to take care of children while their parents are attending convention sessions.

"No announcement can yet be made on the entertainment features of the convention. The present plans are too large in their scope and complicated in their details to permit of any premature announcement. Prospective delegates may be assured, however, of having a most delightful time in the playground of the Middle West. Situated as it is on the shores of Lake Michigan, the convention hotel will offer the utmost in cool, clean comfort.

"An outstanding program, both as to the prominence of the speakers and the factual subjects of their addresses, is now being arranged. These highlights of the convention will augment the practical and lucid business sessions of the convention. Coming as it does when the industry is in the midst of the hurly-burly of the New Deal, the fifty-third convention takes on an increased importance. It is hoped that leaders in the Roosevelt administration will be present to give to the delegates some preview of the tremendous program which is being undertaken. By June, at least, the broad outlines of the second phase of the recovery program will be ready for presentation, and it is our hope to have informed and authoritative speakers from the National Government to discuss the phases of the new program of pertinence and interest to the members of our industry.

"Associations are urged to make plans for attendance now."

Geo. H. Werner Elected Vice President of Bank

George H. Werner

George H. Werner, president of the Geo. H. Werner Plumbing Company of Orange, N. J., was recently elected vice president of the Second National Bank of Orange, of which he has been a director for the last twenty years. As a result of this new honor, Mr. Werner is at the present time receiving congratulations from friends in the plumbing trade throughout the country. Mr. Werner is a director of the National Association of Master Plumbers and has served in that capacity for several years. He also is and has for several years served as treasurer of the New Jersey State Association of Master Plumbers. He also has filled several municipal offices in Orange, including the offices of mayor and of director of public safety. In announcing Mr. Werner's election, Wilbur Munn, president of the bank, declared: "The Second National Bank considers itself extremely fortunate in securing the services of Mr. Werner as vice president of the bank."

California Master Plumbers Will Meet at Santa Monica

F. C. Schilling, Jr., Los Angeles, Calif., president of the State Association of Master Plumbers of California, announces that the 34th annual convention of that organization will be held at Santa Monica on May 20-23, with headquarters at the Hotel Miramar. Working with Mr. Schilling in preparation for that convention are the following state officers: W. H. Picard, first vice president, Oakland; Wm. Nies, second vice president, Los Angeles; J. B. Hawley, treasurer, Sacramento; L. E. Remy, secretary, Long Beach; R. W. Timmons, past president, Richmond; E. B. Brooks, board member, Redlands; James F. Mauzy, board member, Walnut Creek, and C. F. Hoffman, board member, San Diego.

C. M. Zeigle Appointed to Succeed R. G. Thomas

C. M. Zeigle, of 529 San Pedro Ave., San Antonio, Tex., has been appointed by the divisional code authority as acting state executive for the state of Texas to take the place of R. G. Thomas, who died when returning from the meeting of directors of the National Association of Master Plumbers at Washington last November.

Mr. Zeigle promptly issued two notices, one to state and zone code committeemen and the other to state and zone code committeemen and presidents and secretaries of local master plumbers associations of Texas, requesting their "unstinted cooperation in the work to be done, even to the point of sacrifice if necessary."

Indiana Masters Will Meet in May

The Indiana State Association of Master Plumbers will hold its thirty-ninth annual convention at Indianapolis, Ind., May 6, 7 and 8, according to announcement issued by President Joseph G. Hayes of Indianapolis.

Louisville Master Plumbers Elect Officers

The Master Plumbers' Association of Louisville, Ky., recently elected the following officers for 1935: President, Martin A. Wittmer; vice president, Ed P. Kaiser; secretary-treasurer, O. H. Mitzlaff (re-elected); sergeant-at-arms, Tony Fontana (re-elected), and member of the board of directors, George H. Miller.

St. Louis Plumbers Secure Business by Exposition and Campaign

The Contracting Plumbers' Association, Inc., of St. Louis, Mo., maintained an attractive display of plumbing goods at the Modern Homes Exposition held recently at the Municipal Auditorium in that city. The arrangement of the plumbing exhibit was so elaborate that it was considered the most outstanding display of the exposition, which consisted of 123 exhibits with a total value of merchandise on display of more than one million dollars.

Members of the Contracting Plumbers' Association were in attendance at the booth from 2 p. m. to 11 p. m. each day. Fixtures had price tags in plain figures attached so that the public could see the cost of each article. In the two weeks following the close of the exposition, one of the wholesalers sold eight cabinet sinks, these sales being developed as the result of the exhibit.

The Contracting Plumbers' Association also participated in a Better Housing Campaign sponsored by the Federal Housing Administration. Reports show that 5,200 plumbing jobs were pledged through this campaign. Of these plumbing jobs 1,304 have been completed at a total cost of $133,328.

Part of the display of the Contracting Plumbers' Association, Inc., of St. Louis, Mo., at the recent Modern Homes Exposition in that city

New Orleans Master Plumbers Elect Officers

The Master Plumbers' Association of New Orleans, La., held its annual meeting recently and elected the following officers for 1935: President, James F. O'Neil; vice president, Clem Sondes; secretary, Louis H. Faivre; treasurer, A. J. Sciambra; sergeant-at-arms, H. A. Martin; board of directors: Clem Sondes, chairman; E. L. Hagadorn, E. L. Kimble, A. H. Kussmann, J. R. Lawton, H. L. C. Leidinger, L. Opperman, R. W. Reynolds, Sr, and A. J. Sciambra.

Buffalo Master Plumbers Elect Officers

William Ludlow was re-elected president of the Buffalo, N. Y., Master Plumbers Association, Feb. 14, as were the other officers as follows: Vice president, Julius G. Irr; secretary, William G. Maurer; treasurer, William A. Keller. Directors were elected as follows: Fred N. Jones, Roy L. Noah and Allan A. Westphal. The directors whose terms continue are: C. H. Brenner, H. J. Ritter, W. Frank Clucas, and Fred L. Yuhl. George W. Frank, vice president of the National Association of Master Plumbers, installed the officers. William C. Moss was appointed chairman of a committee to make plans for a credit bureau.

Master Plumbers of the Oranges and Maplewood Hear Talk on Code

The Master Plumbers' Association of the Oranges and Maplewood, N. J., held its regular semi-monthly meeting in the association rooms on Wednesday evening, February 6th. President Raymond Bocco presided and appointed the following committees for 1935: Conference: Messrs. Hoffman, Buggelin, Hunter, Trapper and Carr; plumbing examining board: Messrs. Robertshaw, Mocksfield, Traphagen and Koeck; press committee: R. Bocca and J. Berg; sick committee: Messrs. Trapper, Mocksfield and Buggelin; entertainment committee: Messrs. Durr, Robertshaw, Johnson and Corvelli; membership committee: Messrs. Hoffman, Berg and Angelo; finance committee: Messrs. Fricke, Trapper and Palmatier; house committee: Messrs. Trapper, Krause and Hoffman.

The personnel of the grievance committee will be announced later.

Willard Durr having resigned as secretary, this position was filled by Jos. Berg.

The date for the annual banquet was left in the hands of the entertainment committee.

George Brenner, fourth vice president of the New Jersey State Association of Master Plumbers, delivered a most instructive talk on the code.

G. R. ENGLIN has just been appointed secretary-manager for the Master Plumbers' Association of Rock Island, Ill., with offices at 1901½ Second Avenue in that city. Mr. Englin was formerly with the Galesburg association.

Nine States Announce Dates for Annual Conventions

The Association of Master Plumbers of the State of Washington will hold its annual convention at Port Angeles, Wash., May 24 and 25, according to announcement by E. G. Spangler, president of the association. Convention headquarters will be at the Elks Club. J. C. Breitlauch of Port Angeles is chairman of the convention committee.

The Arkansas State Master Plumbers' Association has selected April 8 as the date for its annual convention. This year's meeting will be held at Little Rock, with headquarters at the McGehee Hotel. George W. Shirley of Van Buren is president of the state association.

The 1935 annual convention of the Oklahoma State Master Plumbers' Association will be held at Clinton, Okla., April 22 and 23, it is announced by W. R. Gilchrist, Clinton, state president. Headquarters for the convention will be at the Calmez Hotel.

The Association of Master Plumbers of West Virginia has selected April 8 and 9 as the dates for its annual convention. The meeting will be held at Bluefield and headquarters will be at the Hotel West Virginia. George A. Thompson, Charleston, is president of the association.

The Associated Master Plumbers of New Mexico will hold their annual convention at Albuquerque, N. Mex., on March 9. Headquarters for the meeting will be at the El Fidel Hotel, according to John Strumquist, Albuquerque, state president.

The Vermont State Association of Master Plumbers will hold its annual connvention at Montpelier, Vt., on August 6, it is announced by W. N. Peck, state secretary. Tentative plans call for holding the meeting in the City Hall.

The Associated Master Plumbers of Texas, Inc., will hold their annual convention at Fort Worth, Tex., April 22 and 23, according to announcement just issued by E. H. Jordon of San Antonio, secretary of the association. Headquarters will be at the Blackstone Hotel.

The Maine Master Plumbers Association will hold its annual convention at Lewiston, Me., March 12 and 13, it has just been announced by John T. Kerrigan of Lewiston, state president. Convention headquarters will be at the DeWitt Hotel.

The Kansas Master Plumbers Association will hold its 1935 annual convention on March 11 and 12 at the Jayhawk Hotel, Topeka, Kan., according to Carl McGregor, Winfield, Kan., secretary of the association.

Chas. E. Gawne Addresses Optimists

Chas. E. Gawne, president of the Plumbing Contractors' Association of Chicago and secretary of the National Association of Master Plumbers, was the guest speaker at the Optimists Club in Oak Park, Ill., at their luncheon on February 19th. Mr. Gawne spoke on "Plumbing in Relation to Public Health" pointing out the menace of antiquated and insanitary plumbing and cross connections.

Advocates Spending One Million Dollars to Improve Sanitary Conditions in Utah

The expenditure of one million dollars to improve sanitary conditions in rural section of Utah, was advocated by H. W. Turner, state director of sanitation, United States public health service, in a recent speech before the Salt Lake City Real Estate Board.

Among the installations needed in the rural sections, was an additional 75,000 toilets, besides numerous septic tanks, and where possible, new connections with sewers, said Mr. Turner. He endorsed the undertaking of the work through cooperation of the state health department and the FERA.

MADE WITH A KICK
THE SATURDAY EVENING POST
"AN AMERICAN INSTITUTION"
MADE WITH A KICK
IS YOUR DRAIN CLOGGED OR SLOW?
If clogged, see your Plumber and save costly expense. Plumbers—skilled in care of your plumbing—know the cause—whether animal, vegetable or mineral matter—and if any drain cleaner will work. That is why "Mule-Kick" is only sold thru better Plumbers who will gladly explain how and when to use it. It will pay you to buy "Mule-Kick" (pure, powerful, odorless), that clears most clogs, peps up and sterilizes all slow drains, from your Plumber. If he hasn't it, write Sexauer Mfg. Co., 2503 Third Ave., New York.
ALSO "MULE-KICK" Closet Bowl and Porcelain Cleaners. And patented "Easy-Tite" Faucet Washers, built like a tire with fabric, that give triple wear, stop costly leaks.
Mule-Kick WASTE PIPE CLEANER
"Mule-Kick"
ONE OF 1177 "SEXAUER" PLUMBING PRODUCTS

SEXAUER GOES TO BAT *for the* PLUMBER

with this advertising campaign in the Saturday Evening Post directing its 9,000,000 readers to "GO TO YOUR PLUMBER"

Our advertising campaign in the Saturday Evening Post is fighting your battle.

Its job is to direct this yearly business of over 30,000,000 cans of cleaners that is rightfully yours—away from the mail order houses, cut rate and grocery store competition, and back to you.

This campaign tells these customers *why* they should buy "MULE-KICK" and *why* they should get it from you. Because you are the only one qualified to expertly advise them about their plumbing needs.

It is your business and we are out to get it for you. Our current advertisement appearing March 16 in the Saturday Evening Post, shown above, features "MULE-KICK" Waste Pipe Cleaner. "See your plumber," reads the advertisement, "and save costly expense." "Plumbers—skilled in care of your plumbing—know the cause—whether animal, vegetable or mineral matter—and if *any* drain cleaner will work."

"MULE-KICK" Waste Pipe Cleaner, Closet Bowl Cleaner, Creme Porcelain Polish, are different and better. They are sold *only* through the Plumbing trade. They are fully approved by Good Housekeeping Institute. And they are nationally advertised to 3,000,000 housewives every month.

The one way that you can profit most from this campaign—as thousands of plumbers have already learned—is to *stock—display—and recommend* "MULE-KICK" Products.

Try This NEW Jar *free*

NEXT POST AD TO FEATURE—"MULE-KICK" CREME PORCELAIN POLISH. That quickly "wipes out" rust, stains, scum from bathroom and kitchen fixtures, refrigerators, stoves, linoleum, glass, woodwork, etc., without scratching. Renews and protects surface gloss. Fully approved by Good Housekeeping Institute. Now comes in a new air-tight glass jar. Thousands of housewives are writing, "Where can I buy it?"—only at your plumber's is our reply. Try a Jar in your own home FREE. Check and mail the coupon below.

P. S. Have you tried the NEW IMPROVED "MULE-KICK" CLOSET BOWL CLEANER? If you haven't we'll gladly send you a trial can of that FREE, too.

J. A. SEXAUER MANUFACTURING CO., 2503 Third Ave., New York, N. Y.

....Please send me a free trial jar of "MULE-KICK" Creme Porcelain Polish.
....I'd also like to try your NEW Improved Closet Bowl Cleaner.

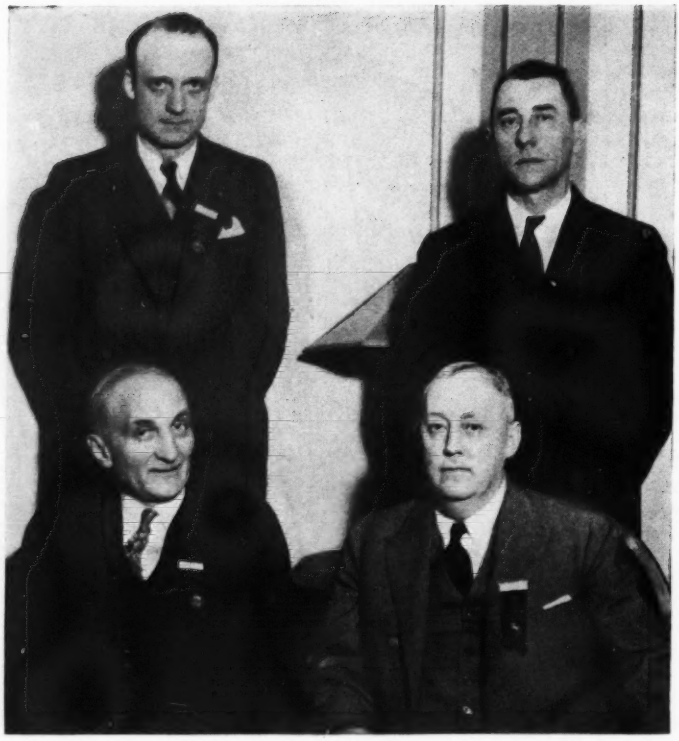
Name .....

Street .....

City ..... State .....

Ohio Opposes Sales Tax on P. and H. Products

Henry S. Blank, Dayton, Elected State President



Standing, left to right: Walter Eynon, Canton, vice president; Henry S. Blank, Dayton, president. Seated: H. W. Eckhardt, Cleveland, temporary secretary-treasurer; Howard C. Baker, Toledo, retiring president

THE Ohio State Association of Master Plumbers held one of its best conventions in recent years at Columbus, February 4th to 6th. This year's meeting was the forty-fourth annual gathering of the association.

The Ohio state sales tax came in for considerable discussion. This tax, it was pointed out, places a heavy burden on plumbing and heating contractors and, after considerable discussion, a resolution was adopted (although not unanimously) asking the Ohio State Tax Commission to rescind its Special Ruling No. 33 so that the tax will be collected from the vendor. In addition, the delegates supported a resolution calling upon the state legislature to eliminate the sales tax from all building materials. A resolution similar to this is being supported by numerous other organizations associated with the construction industry in Ohio.

The program bought out discussions of problems of the industry by many prominent leaders. Among these were: John J. Calnan, Chicago, president of the National Association of Master Plumbers; Robert J. Barrett, Washington, D. C., executive director of the divisional code authority; Edward B. Kleine, Cincinnati, director of the National Association of Master Plumbers; Walter Klie, Cleveland, representing the Heating, Piping and Air Conditioning Contractors National Association; A. R. Herske, vice president, American Radiator Company, New York City; W. E. Price, Muncie, Ind., president of the Central Supply Association.

NEW OFFICERS ELECTED

Henry S. Blank of Dayton was elevated to the presidency of the association, succeeding Howard C. Baker of Toledo. The new vice president is Walter Eynon of Canton. H. W. Eckhardt of Cleveland is serving as temporary secretary-treasurer of the association in place of Eb Ellen of Cleveland, who is ill. Mr. Eynon and Mr. Baker were elected delegates to the forthcoming national convention in Chicago. M. Reilly of Youngstown and William Gesling of Lancaster were named alternates. Next year's convention will be held at Dayton in February.

Several important resolutions, in addition to the two previously mentioned, were considered. One of these, presented by the Mahoning Valley Association, asked that an organization to be known as the Secretaries' Committee of the Ohio State Association of Master Plumbers be formed as an educational instrument to assist local associations and to discuss problems of interest to them. Considerable discussion ensued concerning the advisability of forming such an organization and the proposition was finally defeated.

Upon the recommendation of President Baker a finance standing committee will be formed to work out a definite budget for the year. In another resolution objection was made to the removal of the "selling below cost" provision of the plumbing code. The delegates concurred in this resolution. In still another resolution the incoming officers were requested to appoint a standing industrial compensation committee, one of the chief aims of which would be to determine methods for reducing insurance rates of plumbing and heating contractors. This was referred to the incoming board for action.

The incoming board was also requested to study three other propositions: (1) the matter of sanitary conditions in eating places; (2) the creation of a publicity standing committee, and (3) the creation of a standing committee to develop more harmonious relations with the wholesaling branch of the industry.

A resolution presented by the Cleveland association asked that Eb Ellen, veteran secretary-treasurer of the state association, be made an honorary member. This was adopted unanimously. Mr. Ellen has already been made an honorary member of the Cleveland Association.

Depew C. Freer, secretary of the wholesale plumbing and heating industry, and C. F. Pickett, Ohio State Tax Commission, led the discussion pertaining to the state sales tax.

Following is the tax commission's Special Ruling No. 33, which was the basis of considerable discussion:

"Contractors maintaining retail establishments for the purpose of resale, who furnish to the person from whom they purchase a certificate of resale, shall be considered vendors within the meaning of this act, except in cases where tangible personal property is used or consumed by them in their regular contracting business, in which event they shall be considered consumers within the meaning of Special State Ruling No. 33 as prescribed by the tax commission and shall cancel prepaid tax receipts for the amount of the selling price of the tangible personal property transferred from their stock. The prepaid tax receipt shall be attached to the contract or order and retained for the purpose of inspection by the tax commission."

Uncertainty prevailed among the delegates as to the proper interpretation of this ruling. It was finally decided that the sense of the ruling was as follows:

"The contractor is a consumer if the material is used in contract work, in which case he must pay the tax. The contractor is a vendor on over-the-counter sales, in which case the wholesaler must pay the tax."

Such a situation, it was pointed out, places practically the entire burden of tax payment upon the contractor due to the fact that almost all of the material he sells is used on contract work.

As a result, the resolution previous referred to was adopted, asking the tax commission to rescind Special Ruling No. 33 so that the tax will be collected from the vendor.

Various points of view on this resolution were expressed by Edward B. Kleine, Walter Klie, John J. Calnan, Edward Maurer of Cleveland, William Grabowsky of Canton and William Haas of Dayton.

Mr. Klie urged that the resolution be adopted. He termed the tax commission's ruling the "most balled-up effort to get around a hard job that I ever saw." Mr. Kleine was vigorously opposed to adoption of the resolution, holding that the contractor is a vendor whether he does contracting work or sells over the counter. Mr. Calnan expressed the view that master plumbers should not be burdened with the responsibility of tax collecting.

PRESIDENT BAKER GIVES REPORT

President Baker's report on the year's activities revealed a large membership gain for the association. The number of local associations was increased from 23 to 38 and the number of members in good standing from 490 to approximately 550. Mr. Baker described several changes that have been made in zone boundaries. He feels that more standing committees are needed.

His recommendations for the creation of a finance committee and a publicity committee were concurred in by the delegates, as previously mentioned. He pointed out that during the past year the essay committee was used as an educational instrument for the purpose of assisting local associations and recommended that this practice be continued during the coming year.

PRESIDENT CALNAN'S ADDRESS

National President Calnan in his official address complimented President Baker and the Ohio association for the large gain in membership made during the year. He also gave a complete report of the activities of the National Association of Master Plumbers. He explained that after assuming office he proposed several simple objectives which in his opinion would enhance the value and usefulness of the National Association.

These objectives were: (1) to secure adequate plumbing ordinance and license laws where they didn't exist, and improving those laws now in effect; (2) to secure the full enforcement of existing laws and ordinances; (3) the formation and functioning of state and local conference committees; (4) the correction of the evils of our distribution system, and (5) technical research and the dissemination of technical information to our membership.

President Calnan pointed out that the amebic dysentery outbreak in Chicago in 1933 was caused by defective and antiquated plumbing. He urged master plumbers to take advantage of the publicity material available concerning this subject and distribute it freely with a view toward eliminating health hazards.

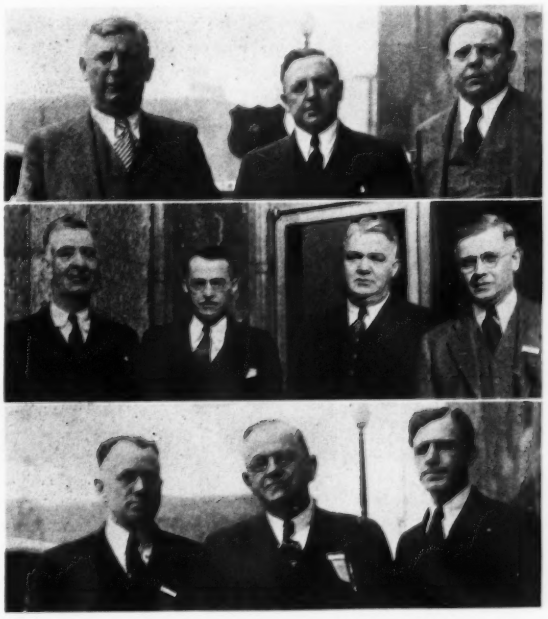
In regard to the FHA campaign, he said: "It is hardly necessary for me to elaborate upon the modernizing and Federal Housing Administration movement. I would recommend that every member take advantage of the advertising and publicity that is being promoted by the government, and that all of us identify ourselves with the movement."

DISCUSS CODE PROBLEMS

The NRA codes and their bearing on the plumbing and heating contractor were discussed by Robert J. Barrett, executive director of the divisional code authority for the plumbing contracting industry, who talked on "Our Code of Fair Competition." Mr. Barrett emphasized the point that the plumbing code is a law and that it is designed to protect both the large and the small operator. This code, he pointed out, definitely controls the former vexing problem of bid peddling.

Walter Klie urged plumbing and heating contractors to stop looking for loopholes to "beat" the plumbing and heating codes. Mr. Klie said it disturbs him greatly to hear combination contractors connive as to which code they can avoid on the basis that they do either more plumbing or more heating.

Walter Eynon, state executive, divisional code authority, gave a very detailed and clear explanation of the operation of the code in Ohio. Minimum wage rates is a large problem



Top row, left to right: J. R. Roth, L. A. Rechkemer and William Zernechel, all of Canton. Second row: H. W. Limbert, Akron; W. C. Brooks, Canton; L. J. Spahn, Niles, and F. C. Kaercher, Youngstown. Lower row: C. E. Brogan, Cambridge; S. C. Munson, Plumbers' & Factory Supplies, Inc., Columbus, and C. E. Edwards, Barnsville

Left to right: John J. Calnan, Chicago; J. H. Duffey, local president, Kel W. Osborne, local secretary, J. R. Jacobs and H. J. LaPlante, all of Columbus; Edward D. Maurer, past state president, Cleveland; Grover Myers, Fostoria; H. M. Wormley, Struthers; M. F. Reilly, Youngstown; H. E. Mueller, William Grabowsky, past state president, U. I. Bott and A. W. Baum, all of Canton

in rural communities and in cities of 50,000 population and under, Mr. Eynon said. He explained the administrative set-up and the purpose of collective bargaining agreements.

In reporting on the Ohio NRA, Henry Blank pointed out that a law has been prepared for submission at the present session of the state legislature designed to make the Ohio NRA permanent, regardless of what may happen to the federal NRA.

National Director Kleine, owing to the fact that President Calnan was present to explain N. A. M. P. activities, gave only a short talk. Mr. Kleine, who is a member of the national code authority, asked for patience on code enforcement.

Mr. Kleine described in some detail the activities of the Plumbing and Heating Industries Bureau and praised highly the work that it is doing.

PRESIDENT PRICE ADVOCATES SUPPORT OF FHA

W. E. Price, Knapp Supply Company, Muncie, Ind., president of the Central Supply Association, urged every contractor-dealer to support the FHA Housing Campaign. What we have always needed in the building field is a financial set-up that would take care of every item of building construction, he said.

The federal government now realizes that the return of prosperity depends upon a revival in the construction industry, which normally employs approximately five million persons, Mr. Price said. The Federal Housing Act offers the opportunity that we have always needed in the building field. Every wholesaler and every master plumber should inform himself as to the provisions of the act, thus placing himself in a position to take full advantage of it.

Mr. Price urged action to promote a better feeling among the three branches of the industry, terming each branch an economic necessity. He urged cooperation in forming a plan whereby manufacturers, wholesalers and contractors can jointly attack the problems of the industry.

Top row, left to right: William Haas, Dayton; G. L. Woods, state plumbing inspector, Columbus; C. G. Critchfield, Mansfield; Charles L. Martin, Steffin; C. Edward Millington, Mansfield. Lower row: Charles Herier, Charles E. Ridenour, A. Ellinger, J. D. Jamison, Charles E. Ridenour, Jr., all of Springfield

An interesting feature of the program was a paper read by Major Joel I. Connolly which had been prepared by Dr. Herman Bundesen, president of the Chicago board of health. Doctor Bundesen's paper discussed the relation of infectious diseases to plumbing and recounted experiences which had won medical men to a greater appreciation of the need for proper plumbing installations. Doctor Bundesen's paper gave examples of what had been found in hotels, industrial plants and hospitals where faulty plumbing installations, such as cross connections and rotted pipe, had resulted in contaminating the water supply.

Herske Urges Better Selling

A. R. Herske, vice president of the American Radiator Company, New York City, made a deep impression on his listeners with a stirring address pointing to the need for increased sales efforts by plumbing and heating dealers.

Mr. Herske painted a word picture of an ideal industry. He remarked that the American Medical Association with its strict regulations prohibiting its members from seeking business through advertising their services and professional qualifications is considered by many to be an ideal industry. To disprove this theory, Mr. Herske pointed out that the average gross income of A. M. A. members was only $3,100 a year. He pointed out further that the supposedly "ideal" position of A. M. A. members is now seriously threatened by state medicine. This situation is definite proof, in Mr. Herske's opinion, that profit is limited when service alone is limited.

Mr. Herske strongly urged all master plumbers to bend every effort to improve their merchandising methods. He cited the following comparative statistics on sales of boilers and sales of bathtubs to show that heating contractors have done a much better sales job during the past six years than have plumbing contractors:

1929—1½ boilers sold for every residence
1934—4½ boilers sold for every residence
1929—6 bathtubs sold for every residence
1934—6 bathtubs sold for every residence

These figures show that the heating industry, despite a 71 per cent decline in new construction, found a place to sell its products while the plumbing industry practically stood still.

Mr. Herske feels that manufacturers, wholesalers and dealers in the plumbing and heating industry must concentrate more definitely on the task of learning and employing salesmanship; otherwise he is afraid that outside interests, already well trained in selling methods, will procure much business that belongs rightfully to the present manufacturers, wholesalers and dealers. "Let's keep the plumbing and heating industry to ourselves," was Mr. Herske's closing remark.

The tremendous opportunities now available to the plumb-

ing and heating industry through the FHA were pointed out by James G. Caffrey, FHA director for Northern Ohio. The FHA is designed to help plumbing and heating contractors sell, but in order to do so successfully they must know how to use it, the speaker said. He reviewed the act in detail in order to acquaint his listeners with the proper procedure to follow in using it.

Mr. Caffrey took issue with those persons who say there is no need for new construction. He is of the opinion that old property will not move until new construction is started. Approximately 800,000 homes should be built this year to take care of needs, he said.

OTHER ADDRESSES AND REPORTS

Col. A. R. McGonegal, Washington, D. C., chairman of the National Sanitary Committee, urged Ohio master plumbers to cooperate with the committee in procuring the information it is gathering on plumbing conditions.

The state sanitary committee in its report recommended that efforts be renewed to secure passage of a new state plumbing law. President Baker is of the opinion that there is a good chance this year to secure the desired changes in the state sanitary law.

The work of the state apprenticeship committee was continued during the past year despite economic conditions, according to the splendid report rendered by Walter Eynon, chairman. The number of apprentices enrolled, however, was lower in 1934 than in 1933.

George W. Strom, representing the United Association of Journeymen Plumbers and Steam Fitters, emphasized the need for closer cooperation between master plumbers and journeymen throughout the country.

Carl Mueller of Findlay, a member of the essay committee, read a splendid paper on the dangers of procrastination in business. He recounted how he had lost a job through failing to call on the prospect immediately upon learning that the party was interested in installing new plumbing equipment. Mr. Mueller was complimented by Mr. Herske upon the excellence of his paper.

A memorial service was held at the opening session with Harry Wormley of Struthers in charge, to honor members who died during the year. The following names were read: Carl Spatz, Cleveland; John Kewley, Toledo; D. C. Heater, Ashland; E. B. Center, Sandusky, and John Leese, Cleveland.

The following committees were appointed by President Baker to serve during the convention:

Resolutions Committee: William Grabowsky, Canton, chairman; N. S. Larsen, Toledo, and William Haas, Dayton.

Credentials: M. Roberts, Columbus, chairman; H. J. LaPlante, Columbus, and William A. Schneider, Columbus.

Auditing: Edward D. Maurer, chairman, Cleveland; Oliver Hoffman, Akron; William H. Schneider, Columbus.

Joseph R. Jacobs of Columbus was in charge of publicity for the convention and also served as sergeant-at-arms.

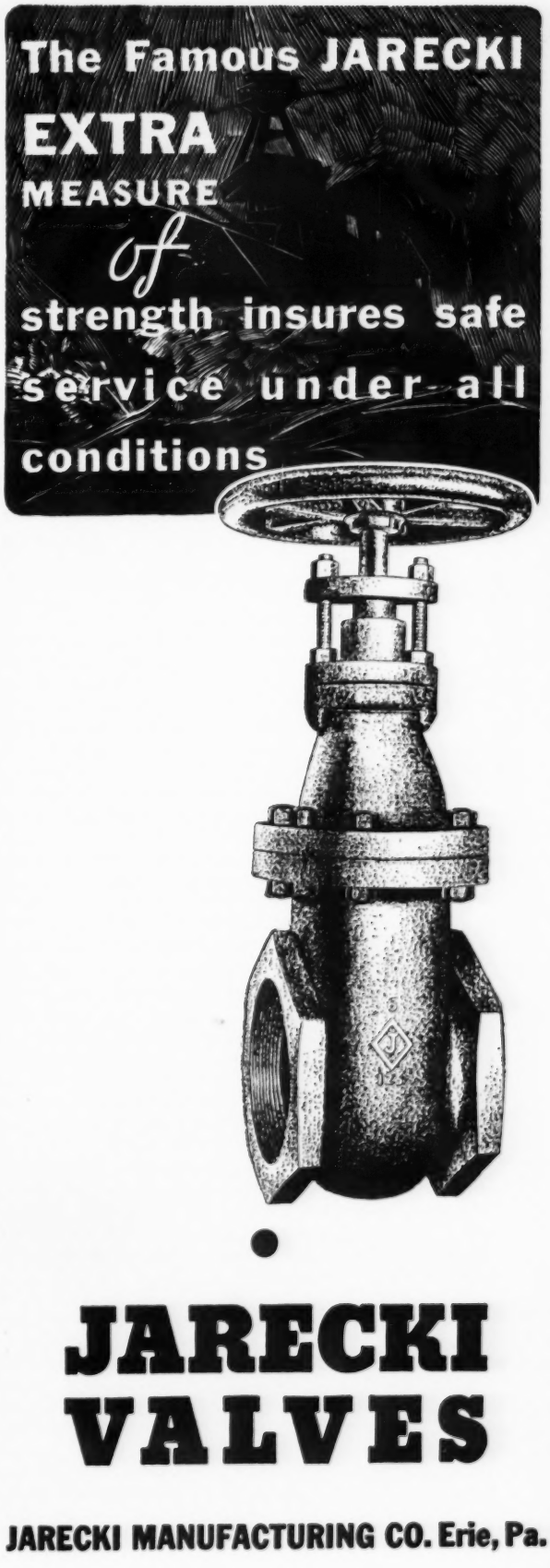
Hackensack Masters Hear Talk on Code and Overhead

The Master Plumbers, Steam and Sheet Metal Association of Hackensack and Vicinity held its regular monthly meeting on Tuesday, February 12, in the American Legion Hall at Hackensack, N. J., and heard an instructive talk on "The Code and Overhead," by Ira Morris, secretary of the Newark Master Plumbers' Association.

Following the business session, refreshments were served.

Lester Wake, fieldman of the New Jersey State Association, and J. R. Lewis of DOMESTIC ENGINEERING attended the meeting.

The officers of the Hackensack Association are: President, A. R. Kampff; vice president, Jos. A. Jerlinsky; secretary, Harrison Tallman, and treasurer, Louis V. Ziegler.



Left to right: Robert T. Morrill, state president, Beloit; R. T. Royston, first state vice president, Madison; Henry J. Smith, second state vice president, Racine; George O. Toepfer, state secretary, Milwaukee; John P. McCoy, retiring state president, Fond du Lac

Wisconsin Names R. T. Morrill State President

Two-Thirds of Membership Attends Successful Annual State Convention Held in Milwaukee

The forty-first annual convention of the Wisconsin Master Plumbers' Association was held in Milwaukee, January 29th to 31st. More than two-thirds of the state membership attended the convention and elected the following officers:

Robert T. Morrill, Beloit, president; R. T. Royston, Madison, first vice president; Henry S. Smith, Racine, second vice president; Edward Hanley, Milwaukee, treasurer; and George O. Toepfer, Milwaukee, secretary. Mr. Toepfer and Frank D. Branson, La Crosse, were named delegates to the next national convention in Chicago. Charles B. Baumgardt, Wausau, was selected as alternate.

Many out-of-state guests were present, including a large delegation from Chicago. Among the visitors were: H. Merwin Porter of Minneapolis, past president of the Minnesota Master Plumbers' Association; G. J. Palmer of Ames, Iowa, president of the Iowa Master Plumbers' Association; John J. Calnan of Chicago, president of the National Association of Master Plumbers; Robert J. Barrett, Washington, D. C., executive director of the divisional code authority; Charles E. Gawne of Chicago, secretary of the National Association of Master Plumbers; Henry P. Reger, Chicago, a member of the Illinois code compliance committee and past state president; William F. Hildeman, Chicago Heights, Ill., past state president; W. E. Price, Knapp Supply Company, Muncie, Ind., president of the Central Supply Association; William J. Spillane of Jas. B. Clow & Sons, Chicago; Norman J. Radder, secretary-manager, Plumbing and Heating Industries Bureau, Chicago; W. E. McCollum, secretary, Central Supply Association, Chicago; Major Joel I. Connolly, chief of the bureau of engineering and public health, Chicago board of health.

In his welcoming address, Mayor Daniel W. Hoan of Milwaukee told of several meetings of mayors he has attended and said that when private capital fails, it is up to the government to step in and do something. Mayor Hoan predicted that the federal government will soon announce a small home building program on a large scale that will not only give employment to millions but will also solve the home shortage problem.

In his annual report, State President John P. McCoy, Fond du Lac, told of the work he and his various committees have done in order to get the code to function. Joseph Wittig, Milwaukee, state treasurer, reported that the association's finances are in good condition. Charles Pelunek, Milwaukee, state secretary, reported the loss of thirty-eight members during the year, with a present membership of 313 in good standing.

President Price of the Central Supply Association gave an instructive talk carrying definite recommendations for a plan of action by all branches of the industry, under the heading of "Cooperation Means Progress." Cooperation, he said, means to operate together for a common objective, with joint action and with profit sharing. During the last few years, he said, there has been too much loose talk about eliminating some one branch of the industry. It must be recognized that each branch serves a function and is an economic necessity.

Mr. Price urged the entire industry to tie in with the Federal Housing Administration movement saying that "the FHA offers the opportunity that we have always needed in the building field."

National President Calnan rendered a complete report on the activities of the national association. He described the objectives of the current N. A. M. P. program and the work being done by the various committees. Citing the

Top row, left to right: William Brookman, secretary of Illinois association; Henry Reger, past president, Illinois association; E. M. Faul, manager Milwaukee branch, and W. K. Glen, manager, boiler and radiator sales department, Crane Co., Chicago. Lower row: C. Verbrich and T. J. Lang, both of Appleton; Edward Aldag, Sheboygan, and H. H. Diedesch, Chicago

Left to right: Jacob Schuh, L. R. Friend, both of Milwaukee; Joseph Comer, Crane Co., Chicago; John J. Calnan, national president, Chicago; Henry C. Weber, president of Milwaukee Association; Robert J. Barrett, divisional code authority, Washington, D. C.; Walter Tesch, local treasurer, and Byron Graper, both of Milwaukee

amebic dysentery outbreak in Chicago in 1933 as an example, President Calnan emphasized the importance of the master plumber as a health guardian. "This epidemic has proven to physicians and health authorities that sanitary plumbing bears an intimate relationship to public health, and it has proven to us that our insistence that the installation and sale of plumbing materials be strictly observed, is well founded."

He pointed out that the N. A. M. P. has addressed a questionnaire to all local associations asking that they set forth in some detail the present status of relations between the utilities and the master plumber, and make suggestions as to preferable arrangements. On the basis of returns from these questionnaires, it is believed that the N. A. M. P. will be able to develop a national program which will be beneficial to the master plumber and which will allay the present friction between the gas utilities and members of the national association.

In his report, President Calnan also covered mail order house competition, national, state and local conference committees, the advisability of affiliation with state and local construction groups, the publication and supplies division of the N. A. M. P., the Federal Housing Administration movement and national convention plans. (President Calnan's report was published in full in the February issue of DOMESTIC ENGINEERING).

Major Joel I. Connolly spoke on "Plumbing and Public Health Protection." The paper was prepared by Dr. Herman N. Bundesen, president of the Chicago board of health. It recounted experiences which had won medical men to a greater appreciation of the need for stringent plumbing laws. Doctor Bundesen's paper urged that qualified plumbers be used to do modernizing work where present piping is tapped for new connections. He asked for better inspection and more alert health authorities.

Norman J. Radder delivered a splendid address on building good will for the master plumber. He described fully the various services available through the organization which he heads, the Plumbing and Heating Industries Bureau.

W. J. Spillane spoke forcefuly on the need for cooperation among the three branches of the plumbing and heating industry in order to effectively combat outside competition.

Secretary McCollum of the Central Supply Association, in addressing the convention, explained in some detail various phases of the wholesaler's code.

Henry C. Weber, Milwaukee, chairman of the state apprenticeship committee, pointed to the Wisconsin apprenticeship program as one of the best in the country.

The state board of health's activities in protecting health were described by Frank R. King of the bureau of plumbing and domestic sanitary engineering of the state board of health. Mr. King said 300,000 families use water from private wells necessitating inspection.

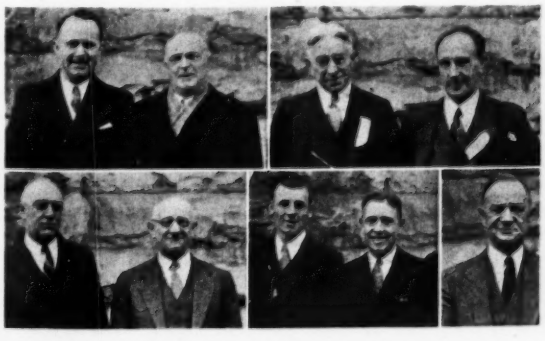
F. M. Dawson, professor of hydraulic and sanitary engineering of the University of Wisconsin, urged master plumbers to let the public know that they sell service as well as material and labor. "If a customer asks why you put in a vent, don't tell him the sanitary laws require it. There is a fundamental engineering reason for what is done in plumbing. The public should know that you are a guardian of health."

URGE SUPPORT FOR PLUMBING CODE

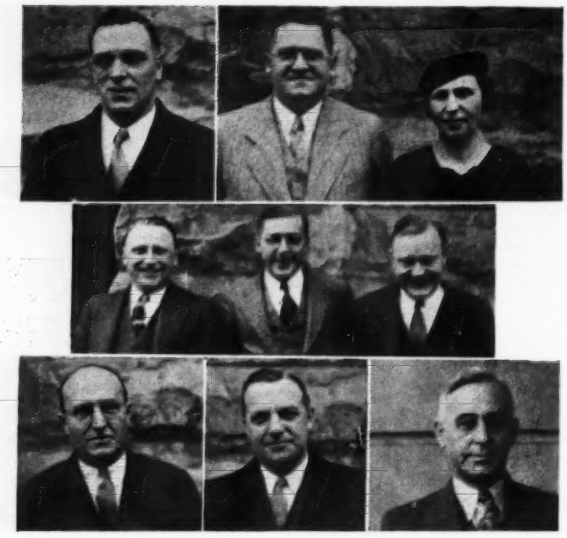
Director Robert J. Barrett reviewed in some detail the code situation and urged the united cooperation of every master plumber in the state. He recalled that the plumbing code is a law and is rated by many as the best code in the construction industry. It is certainly the answer to the wishes of many, he said, recalling that a major problem like bid peddling is definitely controlled by the code.

Codes of fair competition have been necessary because too many persons have forgotten the first code—the Ten Commandments, said George Toepfer, state executive of the divisional code authority. "The day of rugged individualism is gone and old methods of conducting business must conform to our economic development," Mr. Toepfer said. "We have reached an age when selfish interests and competition must be under the control of law and order." In reporting on the progress of code work in Wisconsin, he said the state has been divided into fourteen zones, that compliance committees have been established in each zone, that a state compliance board has been set up, that a state trade practice complaints committee has been established, and that bid depositories have been set up in 12 of the 14 zones.

Failure of NRA officials in Washington to enforce provisions of the code has made competition more ruinous than ever in the plumbing manufacturing industry, Lucius P. Chase, general counsel of Kohler Company, Kohler, Wisconsin, told the delegates.



Top row, left to right: R. E. Hostetler, secretary and treasurer, and E. M. McLundie, president, both of Interceptor Corp., Michigan City, Ind., H. A. Clauson and Robert W. Dick, both of Lead Industries Association, New York City. Lower row: O. A. Waskow and Charles Pelunek, both of Milwaukee; John Dickert and L. C. Pugh, both of Racine; Frank King, state plumbing inspector, Madison



Top row, left to right: G. J. Palmer, Ames, president, Iowa association; Mr. and Mrs. H. Merwin Porter, Minneapolis. Second row: N. J. Mathas, William J. Lenti, T. J. Schneider, sales manager, all of A. Y. McDonald Manufacturing Co., Dubuque, Iowa. Lower row: G. R. Frankland, Johns-Manville, New York; George Masterson, general organizer United Association of Journeymen Plumbers and Steam Fitters; Robert N. Campbell, deputy NRA administrator, Washington

"We know severe hardship has been visited upon many producers because of non-enforcement of the code for our industry as against the few who would not comply," Mr. Chase said. "The result has been exactly the opposite of the intent of the NRA."

"The market for plumbing fixtures has become completely demoralized by cut-throat competition existing in a degree never before experienced in the industry. Prices are the lowest in history and are at a ruinous level. Only seven survive among twenty-one enamelware companies and over one-half of the potteries are either permanently or temporarily out of production."

Asserting that competition must be equalized or the industry will go back to the "free for all" days, Mr. Chase said that many firms are being forced to the wall. He criticized the NRA's failure to act on complaints against mail order firms selling below cost of production. He said this situation not only is periling the manufacturer of plumbing fixtures, but the business of the master plumber as well since the business is going through other channels.

Many persons who purchase from mail order houses are misled by prices of fixtures, he said, and find that after they have paid installation costs, plumbing work could have been done for less by a local contractor.

George Masterson, general organizer of the United Association of Journeymen Plumbers and Steam Fitters, criticized chiseling by some employers, blamed labor for some lack of cooperation and urged more harmony between employers and workers.

While journeymen are unemployed, a few greedy employers are doing journeymen's work putting in as long as seventy to eighty hours a week, he said. "When a plumber gets a master's license he should assume a definite responsibility as an employer," Mr. Masterson said. "He should not compete with labor."

Mr. Masterson favors passage of a law that would define the master plumber as a certified plumber who employs journeymen.

The Apprenticeship Training Program in Wisconsin was discussed by Frank R. King; E. E. Gunn, Jr., state board of vocational education; Walter F. Simon, industrial commission; and Prof. Ben G. Elliott, University of Wisconsin extension division.

An enjoyable program of entertainment was provided for the delegates and visitors. On Thursday evening a dinner and dance was held in the Fern room of the New Pfister Hotel. The A. Y. McDonald Manufacturing Company, Dubuque, Iowa, served refreshments in its exhibit room on the convention floor. The Ellsworth Pipe and Supply Company, Milwaukee, also served refreshments.

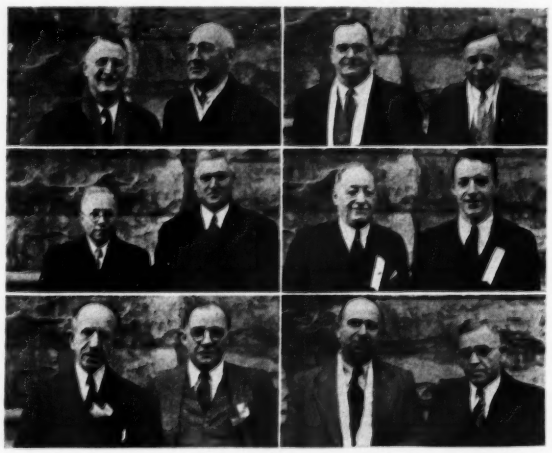
The work of the convention was in charge of the following committees:

Sergeant-at-arms committee: Jacob Mergenthaler, Jr., Hugo Berndt, H. H. Borkenhagen, Arthur Zepf and Elmer Schmidt, all of Milwaukee.

Membership: George Mueller, Oshkosh; F. D. Branson, La Crosse, and Erwin Knauer, Milwaukee.

Memorial: Walter Murphy, Shebogan; John Feiner, Racine, and E. V. Hanley, Milwaukee.

Entertainment: H. A. Wegner, George Bronenkant, Alfred Heiden, Clarence Savadil, and George Vogel, all of Milwaukee.



Top row, left to right: Joseph Wittig, state treasurer, Milwaukee; George F. Reeke, Green Bay; Charles Gawne, national secretary, Peter Munn, secretary Chicago Association, both of Chicago; O. W. Marquardt, F. D. Branson, both of La Crosse; George J. Dehn, president and general manager, G. L. C. Dehn, sales promotion engineer, both of Compound Injector & Specialty Co., Chicago. Lower row: E. Merz, A. Steinhoff, both of Racine; A. C. Olson, Elkhorn, F. P. McGill, White Water

Nominating: F. D. Branson, La Crosse; Louis Schoenleben, Racine; George Mueller, Oshkosh, and Henry C. Weber, Milwaukee.

Press: E. F. Trebs, Milwaukee, and George F. Reeke, Green Bay.

Resolutions: F. C. Kuetemeyer, Milwaukee; George F. Reeke, Green Bay; Robert T. Morrill, Beloit; T. Lang, Appleton; Charles Baumgardt, Wausau; Lewis J. Eron, Wisconsin Rapids; A. F. Boettcher, Milwaukee, and E. Garot, Green Bay.

Apprenticeship: H. C. Weber, Milwaukee; P. Schneider, Sheboygan, and Henry Smith, Racine.

Auditing: Otto Marquardt, La Crosse; Dan Osborn, Beloit; George Hall, Madison, and Dan Ahern, Fond du Lac.

Credentials: A. F. Boettcher, Milwaukee; W. A. Kramer, Waukesha; L. C. Welch, Baraboo, and C. F. Mittag, Merrill.

Grievance: Louis Schoenleben, Racine; Jacob Schuh, Milwaukee; Joseph Brah, Milwaukee; Jacob Zimmermann, Kenosha; George F. Reeke, Green Bay, and R. T. Royston, Madison.

Illinois Plumbing and Heating Contractors to Pay Sales Tax

The Supreme Court of Illinois, which affirmed the decision of the Circuit Court of Cook County in the case of the plumbing and heating supply houses against Knowlton G. Ames, Jr., State Director of Finance, was reheard upon the request of the Attorney General, and on February 8th amended this decision, thereby holding that plumbing and heating supply houses do not have to pay sales tax on plumbing and heating supplies sold to plumbing contractors who are under contract with owners of premises to install same. In so holding, the Court held that the contractors are required to pay the tax as they are making the last sale of the plumbing and heating supplies before use for consumption. This will entail a new ruling by the State Department of Finance so far as master plumbers are concerned. Under a previous ruling only counter sales were subject to the Illinois Retail Occupational Tax but in view of the Supreme Court decision, it is expected that the master plumbers will be obliged to pay the tax on their gross receipts, whether on contract work or sales over the counter. The members of the Chicago Credit Bureau comprising the majority of the supply houses in the Chicago territory have notified the master plumbers that they will discontinue charging 2 per cent sales tax on and after February 11th.

Modernization Exposition, Inc., Emphasizes Importance of Modern Plumbing

An active campaign for the promotion of the National Housing Act in Salt Lake City, Utah, by the Modernization Exposition, Incorporated, is now being prepared, according to Leon B. Hampton, manager of the Salt Lake City branch of Crane Company and president of the Exposition. The value of modern plumbing will receive considerable publicity.

The application of the Exposition to erect a number of small houses on the streets as part of the campaign, has been granted by the city commission. It is planned to have the houses on exhibition in the business district for about thirty days, commencing the latter part of February, Mr. Hampton told the commission.

The houses will be 10 ft. by 12 ft., will contain four rooms and will be constructed 3 ft. on the sidewalk and 7 ft. in the street.

Elizabeth Master Plumbers Hold Most Successful Dinner Meeting

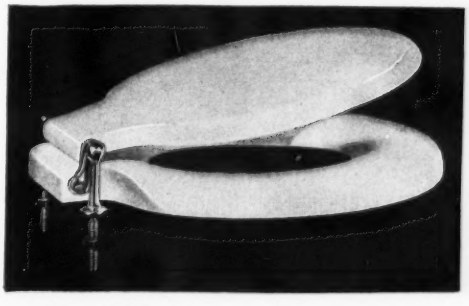
The Master Plumbers Association of Elizabeth, N. J., and Vicinity, Inc., held its annual dinner meeting in the Elizabeth-Carteret Hotel, Elizabeth, N. J., on Thursday evening, February 7th. The affair was graced by the presence of members of the city administration, officers of the New Jersey State Association of Master Plumbers, and other leaders in the industry.

Following the dinner, President Henry A. Rath introduced Mayor Joseph Brophy of Elizabeth, who praised the work of the master plumbers and stressed the importance of organization.

The meeting was then turned over to Past State President George L. Bird of Elizabeth, who delivered an interesting talk before introducing the following visitors who all responded with short speeches: Water Commissioner E. Germann, Water Works Commissioner Walter H. Cole, and William Sheehan, president of the city council, all of Elizabeth; Plumbing Inspector Stephen Allen of Roselle, and W. S. Potter, treasurer of Elizabethtown Consolidated Gas Company. All of these gentlemen pledged themselves to co-operate with the Master Plumbers' Association.

The next speaker was Edmund P. Ingram of Jersey City,

PLUMBING CONTRACTORS WHO RECOMMEND AND SELL A COMPLETE LINE OF WELL-KNOWN SEATS SHOULD GET THE LION'S SHARE OF INCREASED BUSINESS DURING 1935. . . . NEVER-SPLIT SEATS, SUPERIOR IN QUALITY AND APPEARANCE, OFFER GOOD PROFIT POSSIBILITIES, AND THEIR PURCHASE LEADS TO SALES OF COMPLETE WATER CLOSET COMBINATIONS. . . . FOR REASONS* OUTLINED BELOW, IT WILL PAY YOU TO CONCENTRATE ON NEVER-SPLIT.



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president of the New Jersey State Association of Master Plumbers, who told the plumbers that it was their duty to promote their business from every angle and let the public know what they are doing for the welfare of the general public.

President Ingram thereupon introduced the speaker of the evening, Ernst L. Flentje, assistant code director of the Plumbing Industry of the U. S. A., who came from Washington, D. C., to attend this meeting. Mr. Flentje gave a resume of the Code and its enforcement and answered all questions pertaining to same.

A visiting delegation at one of the tables consisted of George Brenner of Orange, fourth vice president of the New Jersey State Association of Master Plumbers; Joseph C. Turbett, Albert Ruehl and Ira Morris, president, second vice president and secretary, respectively, of the Newark Master Plumbers' Association; Lester Wake, fieldman of the State Association, and John R. Lewis of DOMESTIC ENGINEERING.

Regret was expressed over the absence of Luke Devine, plumbing inspector in Elizabeth. This was caused by illness in his family.

Owing to the lateness of the hour, the installation of new officers was postponed to a later date. These officers are: President, Henry A. Rath; vice president, N. A. Apgar; secretary, J. W. Frank; treasurer, George L. Bird; sergeant-at-arms, Otto Wollenberg, and trustee for three years, Leonard Geisler.

H. P. Reger and Thos. F. Hanley Return from Florida

Henry P. Reger of Chicago, past-president of the Illinois Master Plumbers' Association, and Thomas F. Hanley of Hanley and Company, vice president of the Illinois State Association, accompanied by their wives, recently returned from a two-weeks' vacation in St. Petersburg, Florida. They made the trip from Chicago and return by automobile.

Give Prizes for Water Heater Sales

Winners among the plumbing dealers active in the Chicago gas water heater sales contest were announced recently by the Peoples Gas Light & Coke Co. The leaders were: Ridge Plumbing Co., Albert H. Farber, Voland Plumbing, Fred J. Hatch, and Norwood Park Plumbing Co. Other prizes were distributed to many dealers. This contest has been under way for some months and the results, as interpreted by the utility company, and by the appliance manufacturers, were definitely encouraging.

Queens Borough Plumbers Hold Annual Meeting

Jos. R. Mittasch

The Queens Borough Branch Association of Master Plumbers of New York City held its annual meeting recently and elected the following officers for 1935: President, Joseph R. Mittasch, Forest Hill; 1st vice-president, Charles R. Budrie, Elmhurst; 2nd vice-president, Adolph Oerter, Long Island City; secretary, Lawrence J. Redmond, Long Island City; treasurer and financial secretary, John F. Rogers, Flushing; marshal, Charles J. Maguire, Elmhurst; sergeant-at-arms, Harry Hauck, Long Island City.

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1 It is all lead—one piece—strongest construction—built heavy to stand abuse and stretching.

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Paterson Masters at Work on Plumbing and Heating Codes

The Paterson Master Plumbers and Steam Fitters Association held its regular monthly meeting on Wednesday evening, February 13th, in the V. F. W. Hall in Paterson, N. J., and made plans for the revision of the city's present plumbing code and for the compilation of a heating code to present to the city council. Tentative plans were also made for the annual banquet, which is to be held sometime in March.

The officers of the Association are: President, Wm. Verduin; vice president, Harrison F. Cox; secretary, John E. DeGraff; treasurer, Frank Zaffino; sergeant-at-arms, C. V. Ryerson; trustees: S. S. Greenwood, Robert Beaumont and Morris Kessler.

The committees for 1935 are composed as follows:

Ways and Means, Constitution and By-Laws: Andrew J. White, Harry Lauer, John Miller, C. V. Ryerson and Richard Halliwell.

Vocational Advisory Board: Harry Shields, Samuel H. Taylor, Frank Bergen, S. S. Greenwood and Ernest Kuhnen.

Press: Morris Kaminetsky and A. J. White, Jr.

Good and Welfare: John T. Karver, W. Hoyns and George Waister.

Conference Plumbers: Frank A. McBride, William Delhagen, H. F. Cox, Charles Harrowelough and William Hayes.

Conference Tinners: H. E. Leadrim and Harry Lauer.

Entertainment: Jas. J. Moore, John T. Karver, Harry Lauer, Fred W. Hollister, Morris Kaminetsky and Anthony Spagnola.

Honorary List: S. S. Greenwood, William Courtwright and Jos. Paglieri.

Membership: Wm. Borduin, Samuel H. Taylor, J. J. Sikkema and E. G. Neal.

Sick Comittee: Samuel H. Taylor, Jas. J. Maher and Wm. Keyes.

Exchange: John E. DeGraff.

Sanitary and Legislative Committee: James J. Maher, J. S. G. Theissen and Henry Kengeveld.

Budget: Wm. Delhagen, Geo. M. Thomas, Frank Zaffino and James J. Maher, Jr.

Auditing Committee: Harrison F. Cox, Peter Metz and Wm. Delhagen.

Printing Committee: John E. DeGraff and Frank Zaffino.

Jersey City Master Plumbers' Annual Banquet a Great Success

The Master Plumbers Association of Jersey City, N. J., held its annual banquet in the Elks Club in Jersey City on Saturday evening, February 16th, and like all its predecessors it was a great success, and it reflected great credit on the entertainment committee.

Following an elaborate dinner, the guests enjoyed dancing to the music of an excellent orchestra until after midnight.

Louis S. Komoski, chairman of the committee, acted as toastmaster and called on the many notables present for short talks. Those called upon were: Arthur T. Potterton, commissioner of revenue and finance for Jersey City; George H. Werner of Orange, treasurer of the New Jersey State Association of Master Plumbers and director of the National Association of Master Plumbers; Edmund P. Ingram of Jersey City, president of the New Jersey State Association of Master Plumbers; Anthony Marzullo, secretary of the State Association Jas. J. Conlin, president of the Jersey City Association; Henry Williamson, president of Montclair Association; James T. Brennan, secretary of the Jersey City Association; Mrs. Henry Williamson of Montclair, president of New Jersey Women's Auxiliary; Mrs. Geo. H. Werner, Mrs. E. P. Ingram, Mrs. Louis Komoski, and Mrs. Anthony Marzullo.

Jas. J. Conlin

Mr. Brennan called attention to the coming state convention, which is to be held in Jersey City on May 15, 16, 17 and 18, and asked manufacturers and wholesalers to assist in making this convention a success.

A letter signed by practically every one in attendance was sent to Joseph Schneiderman, expressing regret over his absence and wishing him a speedy recovery. Mr. Schneiderman, who seldom misses an association affair, was recently badly burned in an explosion of a gas furnace.

Many representatives of manufacturers, wholesalers, util-

The annual banquet of the Master Plumbers' Association of Jersey City, N. J.

ity companies, city officials and the trade press were present.

Among others in attendance were: Past State President John J. Corcoran of Jersey City and Mrs. Corcoran, past president of the State Auxiliary and chairman of the Sanitation Committee of the National Women's Auxiliary; Fred Baker, president of the North Hudson Association, and Mrs. Baker.

The committee in charge of the affair was composed as follows: Louis S. Komoski, chairman; James J. Conlin, Edmund P. Ingram, John J. Corcoran, George Cooper, Richard Entwistle, Jas. T. Brennan, John A. Ward, Wm. F. Bailey, Joseph Schneiderman, Henry P. Sharrock, Abraham M. Aranson, Ardle Connolly, Harry J. Wasserman, Jr., John J. Crosby, Joseph A. Reilly, Anthony A. Marzullo and Wm. F. Mulholland.

Camden and Cumberland Master Plumbers to Hear Talk on Code

At a recent meeting of the Master Plumbers Association of Camden, N. J., it was voted to hold a special meeting of all master plumbers in Salem, Cumberland, Gloucester and Camden to hear about the latest developments on the code. For the purpose of securing a large attendance, a broadcast was made to the effect that Irving Chew, chairman of the Trade Relations Committee, would address such a special meeting.

At the recent regular meeting, William Lex, Philadelphia manager, and A. Sheldon of the factory, both of Chase Brass & Copper Co., Inc., gave interesting talks on and demonstrations of the products of their company. Jack White, P. Taylor and Philip Quick rendered valuable assistance in the demonstrations.

Albany Plumbers Will Celebrate Fiftieth Anniversary

The Master Plumbers' Association of Albany, N. Y., will be a half century old on March 6. Plans are being made to celebrate the occasion sometime during the month, the exact date not having been fixed at the time this was written.

The committee in charge of arrangements consists of John T. Kerwin, chairman, Henry J. Noord, George M. Decker, Peter M. Welter, Thomas J. Thompson and Edward J. Daley.

The officers of the association are Edward J. Daley, president; Peter H. Rubenstein, vice president; William A. Houseweller, recording secretary; George M. Decker, financial secretary; Joseph Nicklas, Jr., treasurer, and Arthur Kelle, sergeant-at-arms.

Connecticut Master and Journeyman Plumbers Discuss Code Wage

Connecticut master plumbers and journeyman plumbers met recently in the interests of the NRA Code for the plumbing industry. Wage rates for journeymen was the subject under discussion, and it was decided that the prevailing hourly wage should be about $1, instead of the code wage of $1.20.

The meeting served to air conflicting effects of the code in various parts of the state. Hartford journeymen would like an increase to $1.37 per hour in April and a continuation of $1.20 until then. Voting by ballot for the six zones in the state resulted as follows: Fairfield County and North, $1.20; Northwestern Section, 90c, excepting Waterbury, $1; Northeast, $1; New Haven, $1; Metropolitan Hartford and New Britain, $1; Central Section, 80c; New London to Stafford Springs, $1; Shore Towns, 85c.

Complaints were many. Textile town delegates said they could not get even $1 rate from workers averaging $18 a week.

It was suggested that rates be set according to population. The procedure to be taken to actually incorporate the wage level in the code is for the above votes to be taken with additional depositions at a future public hearing, and then the NRA deputy will be asked to incorporate the revisions in the code.

Philadelphia Master Plumbers Elect Officers and See Moving Picture

The Master Plumbers Association of Philadelphia recently held its annual meeting and elected the following officers: President, George Hicks, (re-elected); vice presidents: Harry Stilwell, Sr., William Boal, Walter Lamont, William Hirst, Walter Raid; secretary, Robert H. Pflug-Felder; treasurer, George Moeller; sergeant-at-arms, Edward Quaid; board of directors: William Frey, Philip Hering, Nicholas Connolly, Howard Neilson, Howard Smith, Harry L. Righter.

Following the election, M. Sullivan, Philadelphia manager for Johns-Manville of New York City, showed a moving picture giving a clear idea of the manufacturing processes of the products of this company. The members of the association were guests of Johns-Manville, following the exhibition of the motion picture.

Nassau County Masters Elect Officers

Wm. W. Metcalf

The Master Plumbers Association of Nassau County, N. Y., Inc., held its annual meeting recently and elected the following officers for the ensuing year: Wm. W. Metcalf, Rockville Center, president (re-elected); Wm. Jacobi, Floral Park, vice-president; E. Floersch, Hempstead, recording secretary; W. J. Bloeth, Rockville Center, financial secretary and treasurer (re-elected).

The officers for the past year were given a vote of thanks for their services.

Many Homes in Philadelphia Without Bathrooms

Having recently finished a housing survey of Philadelphia the Local Works Division, under the supervision of Project Director Ralph W. Smith, has just issued a report, which shows that the number of homes without bathrooms is 39,239 or 9.04 per cent. of the whole. Taking 4.3 persons per house an estimated total of 152,022 Philadelphians are without modern means of bathing. And 33,450 homes or 7.7 per cent. of the entire number, are without indoor toilets, the worst district in this respect being the East Central section. There are 2,927 dwellings without either indoor or outdoor toilets. There are 4,424 unsanitary outdoor vaults, more than half of which are in West Philadelphia, constituting a grave menace to health, according to the report.

The homes without heating equipment, numbering 2,984, represent .69 per cent. of the total of 433,796 residential structures in the city. Although many of the unheated places are vacant, Mr. Smith estimates that a total of at least 12,000 persons are living in such poorly equipped houses.

Hot and cold running water are enjoyed by 89.8 per cent., but 9.5 per cent. of the houses have only cold water and 2,048 have no running water at all in the home, depending on wells, or neighbors for their water. There are 1,524 dwellings with hydrants only in the yards.

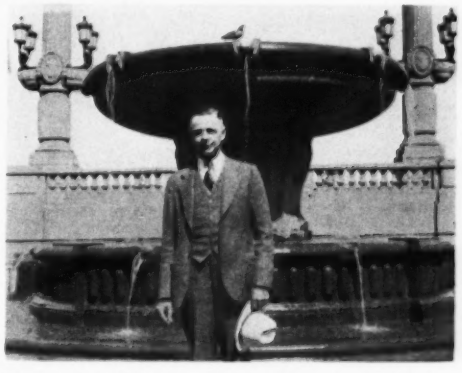
San Francisco Master Plumbers Honor New Members

A rousing welcome was extended a group of new members of the San Francisco Master Plumbers Association on Monday evening, February 18th, at Master Plumbers Hall. It was made the occasion of timely talks by National Director L. J. Kruse of Berkeley, officers of the California State M. P. A., and local civic officials, and was attended by 150 masters of the San Francisco Bay region. Following the meeting, the masters adjourned to the banquet hall where a delicious Dutch lunch was served.

Jack Camp, president of the local association, acted as chairman and welcomed the visiting masters and new members.

Mr. Kruse spoke first, and in his capacity of national director gave his hearers interesting high lights on the welfare of the industry from the national angle. He dealt with the question of mail order house competition, and closed with a word of encouragement to the new members. State Executive Board member Jas. F. Mauzy of Walnut Creek also spoke on timely subjects and felicitated the newly elected members. Executive Board member and past State President R. W. Timmons of Richmond also made a brief address, as did Wm. D. Holbro, chief plumbing inspector of San Francisco.

W. H. Picard of Oakland, first vice president of the State M. P. A., gave a meaty talk, at the outset addressing his remarks chiefly to the new members. Public utility cooperation, the new inspectors' plumbing code, the state association's wholesalers committee, code compliance and bid depositories also came in for able handling by Mr. Picard. He likewise spoke of the plans of the state association looking toward a state-wide radio hookup for publicity work, which it is hoped will ultimately become nation-wide. Details are now being worked out by the state advertising committee of which for northern California Mr. Picard is chairman, assisted by Mr. Mauzy and State Treasurer J. B. Hawley of Sacramento; and for southern California, by Chairman Fred Reed of Los Angeles, and Second Vice President Wm. Nies and Lloyd Johnson.



Jack Camp, President of San Francisco M. P. A.

Announcement was made of the decision to hold the 1935 state convention in Santa Monica, May 21, 22, 23, 24, with headquarters at the Hotel Miramar.

A noteworthy feature of the meeting was the "Looking into the Past" table that stretched from end to end of the banquet room, and on which were photos of early-day association officers and member groups, old-time shops and horse-drawn service trucks of the pre-fire era. Also on

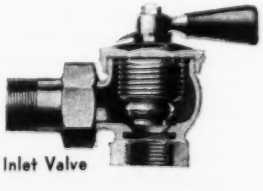
Sarco chosen again by New York State Hospital

The gigantic Pilgrim State Hospital, at Pine Aire, L. I., when additions are completed, will comprise 75 buildings costing $23,640,000.

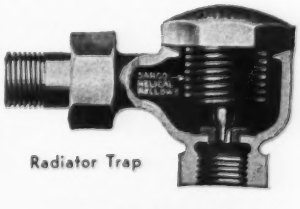
Sarco equipment will be used on the additions now under construction, including Sarco Radiator Traps, Float and Thermostatic Traps, Strainers, Inlet Valves and Temperature Regulators.

Selection of "Sarco" by such a careful purchaser—particularly for a hospital where failure of the heating system might be dangerous to patients — is a striking recognition of Sarco quality.

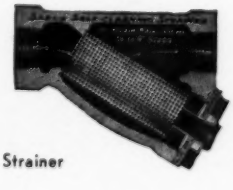
Sarco products, backed by nearly a quarter of a century of experience, are dependable. Play safe and use "Sarco" in your next building.



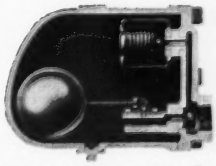
Inlet Valve



Radiator Trap



Strainer



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HOW DO
YOU BUY STEEL PIPE?

Do you merely order so much steel pipe—or do you give serious consideration to the steel pipe you use and order the brand that is best suited to your requirements and that gives you more for your dollar?

Steel pipe is not all alike—there is a vast difference—particularly in the smaller sizes.

Take Fretz-Moon Pipe, for instance. It is made by an exclusive process that is unlike any other method of pipe manufacture. And because it is made of specially-selected materials by this process, it possesses many advantages not found in ordinary steel pipe.

If you prefer to use quality pipe at no increase in cost, it will pay you to investigate Fretz-Moon Pipe. Write for literature.

FRETZ-MOON TUBE CO., INC.
BUTLER • PENNA.

FRETZ-MOON
PIPE
BLACK AND GALVANIZED

display were tongs used long before the advent of chain tongs, small stocks and dies that went through the fire, an archaic gas bracket, a flush pipe strap from an old Birdie toilet, and many other items.

Among those admitted to membership at this meeting were R. E. Giller, F. W. Spencer, J. Mills, A. Goletti, E. A. Demers, Ray Jacks, Herman Lutz, Ed. V. Lacey and Louis May.

West Suburban Master Plumbers Hold Annual Dinner Dance

The West Suburban Master plumbers' Association held its Annual Dinner Dance at the Central Plaza Hotel, Chicago, on Saturday evening, February 9th. There was in attendance over 100 guests, including master plumbers, their ladies and representatives of various supply houses. Following an excellent dinner, the party indulged in dancing until a late hour.

At its annual meeting held recently, Harry Phillips of Western Springs was elected president and Alfred Miller of Oak Park was re-elected secretary. The association comprises the master plumbers of Oak Park, LaGrange, Maywood, Forest Park, Western Springs and Riverside, and River Forest.

Lowell Master Plumbers See Walworth Co's. Moving Picture

Members of the Master Plumbers Association of Lowell, Mass., and representatives of supply houses in that city were guests of the Walworth Company of Boston at a meeting in the Lowell Chamber of Commerce Hall in Lowell on Monday evening, February 4th.

Russell W. Betts, sales manager of Walworth Co.'s Boston Branch, acted as master of ceremonies and gave a resumé of the history of Walworth Company since its foundation in 1842.

James E. Hart followed with an interesting talk of some of the company's newer valves. D. Frank Mederos was the next speaker and gave valuable pointers on welding and brazing in the pipe and fitting industry assisted by Wm. Barron who handled the torch.

Following refreshments, a moving picture showed a complete installation with plumbers at work until the job was finished.

During the evening many questions from the floor were answered, and those in attendance considered it an evening well spent. About seventy-five attended the meeting.

Film Shows How Steel Pipe Is Made

Members of the Master Plumbers Associations of Rock Island, Ill., Davenport, Moline and East Moline, and the journeyman plumbers of those cities were the guests of the Jones & Laughlin Steel Corporation of Pittsburgh, Pa., at a smoker and stag party held at the Knights of Columbus Hall in Rock Island on Wednesday evening, February 6th.

The speakers of the evening were G. C. Shidle and Jonathan R. McCord, both of the Jones & Laughlin Steel Corporation, who gave splendid talks about the manufacture of steel pipe accompanied by three motion pictures showing how steel pipe is made. A smoker and stag party brought the evening to an end.

W. C. Yerger, manager of the Standard Sanitary Mfg. Co.'s branch at Rock Island, was in charge of the meeting.

The Master Plumbers' Association of North Hudson, N. J., will hold a barn dance on Saturday evening, March 23, at the Palisade Temple in Union City, N. J.

New Trade Literature

Circular on Pressure Reducing and Regulating Valves

A. W. Cash Valve Manufacturing Corporation of Decatur, Ill., has just issued a four-page circular, 8½x11 inches in size, illustrating and describing some of its pressure reducing and regulating valves, diaphragm and "pop" relief valves, strainers, automatic pressure controls, damper regulators, water regulators, etc. The circular stresses the points that these products are of high quality and workmanship, and that the manufacturer's responsibility does not cease when the products are sold.

L. O. Koven & Bro., Inc., Issue Industrial Equipment Catalog

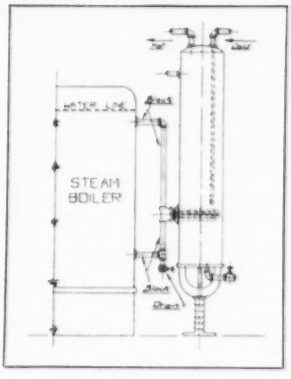
L. O. Koven & Brother, Inc., of 166 Ogden Avenue, Jersey City, N. J., have just issued a 52-page catalog covering its special equipment which is designed and built to meet specific industrial needs, illustrated with hundreds of examples covering the entire range of plate and sheet metal construction in all commercial metals and methods of construction. The catalog is divided into the following sections: 1. Tanks for Process Storage. 2. Equipment for the Chemical and Allied Industries. 3. Mixers. 4. Equipment for Food Industries. 5. Equipment for Machinery and Metal Product Plants. 6. Containers. 7. Sinks and Tables. 8. Miscellaneous Plate and Sheet Metal Construction, including Piping, Stacks, etc. 9. Marine Equipment. 10. Built-up Welded Construction.

New Wall Hanger Shows Plumbing Installation

Lead Industries Association of 420 Lexington Avenue, New York City, has just prepared a 2 ft. by 3 ft. wall hanger showing a blue print of a proper installation of a lead and cast-iron soil and waste pipe system and lead service pipe. It also contains other valuable data including sizes and correct weights of lead service and waste pipe, solder compositions and other information of use to the plumber. Plumbers can make use of this wall hanger to impress upon customers and prospective customers the great complexity of that part of the plumbing system concealed behind floors and walls, which the public rarely sees and little understands. It also brings out the importance of employing licensed, skilled plumbers to make plumbing installations that will give satisfaction and protect health and property. In addition plumbers will find it helpful in selecting proper weights of lead pipe and sheet lead and in obtaining other useful information at a glance.

The F. E. Myers & Bro. Co. Issues Three Catalogs

The F. E. Myers & Bro. Co. of Ashland, Ohio, has just issued three catalogs, as follows: Complete Catalog, No. 67; Spray Pump Catalog, No. S. P. 35, and Power Pump and Water System Catalog, No. P. W. 35. The complete catalog illustrates and describes the entire line of products made by this company and is divided into the following sections: Pumps Operated by Hand or Windmill; Cylinders, including Working Barrels, Plungers, Leathers and Rubber Sundries; Water Systems, Power Pumps, Pump Jacks, Centrifugal Pumps, Accessories for Hand and Power Pumps, Spray Pumps, Power Washers, Hay Tools, Door Hangers, Store Ladders and Engineering Information. This catalog consists of 344 pages, 8½x11 inches, and it has an exhaustive general index which makes it handy for quick and easy reference. The Spray Pump Catalog consists of 70 pages, 8½x11 inches, and it lists the company's spray pumps for hand and power, designed for garden, orchard, row crop or field spraying. The Power Pump and Water System Catalog describes and illustrates the company's self-oiling power pumps and water systems, its cylinders and accessories, sump pumps and tanks. The catalog consists of 104 pages, 8½x11 inches in size.



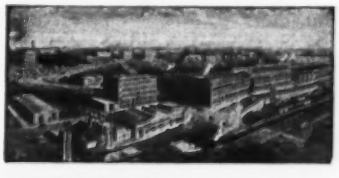
GALLONS HEATED IN 3 HOURS—40 to 140°

	STANDARD DUPLEX WAY
30 GALLON SIZE	
Boiler water 212°	66
Boiler water 180°	33
40 GALLON SIZE	
Boiler water 212°	80
Boiler water 180°	40

ADVANTAGES OF STANDARD DUPLEX

Lower initial cost—greater heating capacity—coil free from lime deposit—saves on boiler capacity—simplicity of hook-up—lower operating cost—saves space—longer life of tank.

Full details on request.



L. O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

Convention Dates

March 9, 1935.—NEW MEXICO.—The annual convention of the Associated Master Plumbers of New Mexico, at Albuquerque, New Mexico, with headquarters at the El Fidel Hotel.

March 11 and 12, 1935.—KANSAS.—The annual convention of the Kansas Master Plumbers' Association, at Topeka, with headquarters at the Jayhawk Hotel.

March 12 and 13, 1935.—MAINE.—The annual convention of the Maine Master Plumbers Association, at Lewiston, Maine, with headquarters at the DeWitt Hotel.

March 14, 1935.—I. O. M. A.—The eleventh annual oil convention under the auspices of the Independent Oil Men's Association of New England, at Copley Plaza Hotel, Boston, Mass.

March 20, 1935.—IOWA.—The annual convention of the Iowa State Association of Master Plumbers, at Des Moines, Iowa, with headquarters at the Fort Des Moines Hotel.

April 2 and 3, 1935.—N. O. B. D. A.—Annual convention of the National Oil Burner Dealers Association, in New York City, with headquarters at the Pennsylvania Hotel.

April 8, 1935.—ARKANSAS.—The annual convention of the Arkansas State Master Plumbers, at Little Rock, Arkansas, with headquarters at the McGehee Hotel.

April 8 and 9, 1935.—WEST VIRGINIA.—The annual convention of the Association of Master Plumbers of West Virginia, at Bluefield, West Virginia, with headquarters at the Hotel West Virginia.

April 15 and 16, 1935.—COLORADO.—The annual convention of the Colorado Society of Sanitary and Heating Engineers, at Denver, Colo.

April 22 and 23, 1935.—OKLAHOMA.—The annual convention of the Oklahoma State Master Plumbers' Association, at Clinton, Oklahoma, with headquarters at the Calmez Hotel.

April 22 and 23, 1935.—TEXAS.—The annual convention of the Associated Master Plumbers of Texas, Inc., at Fort Worth, Texas, with headquarters at the Blackstone Hotel.

April 24 and 25, 1935.—C. S. A.—The spring meeting of the Central Supply Association, in Chicago, with headquarters at the Morrison Hotel.

April 29 and 30, 1935.—MISSOURI.—The annual convention of the Missouri State Association of Master Plumbers, at Kansas City, Mo.

April 30, 1935.—MASSACHUSETTS.—The annual convention of Massachusetts State Association of Master Plumbers, at Boston, with headquarters at the Copley Plaza Hotel.

May 4, 1935.—IDAHO.—The annual convention of the Master Plumbers of the State of Idaho, at Idaho Falls, Idaho, with headquarters at the Bonneville Hotel.

May 6 and 7, 1935.—FLORIDA.—The annual convention of the Florida State Association of Master Plumbers, at Orlando, Fla., with headquarters at the San Juan Hotel.

May 6, 7 and 8, 1935.—INDIANA.—The 39th annual convention of the Indiana Association of Master Plumbers, at Indianapolis, Ind.

May 14, 1935.—SOUTH CAROLINA.—The annual convention of South Carolina Master Plumbers Association, at Anderson, S. C.

May 15, 16, 17 and 18, 1935.—NEW JERSEY.—The annual convention of the New Jersey State Association of Master Plumbers, Inc., at Jersey City, with headquarters at the Plaza Hotel.

May 20, 1935.—TENNESSEE.—The annual convention of the Associated Master Plumbers of Tennessee, at Nashville, Tenn.

May 20, 21, 22 and 23, 1935.—CALIFORNIA.—The thirty-fourth annual convention of the State Association of Master Plumbers of California, at Santa Monica, Calif., with headquarters at the Miramar Hotel.

May 20, 21 and 22, 1935.—PENNSYLVANIA.—The annual convention of the Pennsylvania State Association of Master Plumbers, at Harrisburg, Pa., with headquarters at Penn-Harris Hotel.

May 20, 21 and 22, 1935.—H. P. A. C. C. N. A.—The forty-sixth annual convention of Heating, Piping and Air Conditioning Contractors National Association, in Cincinnati, Ohio, with headquarters at Hotel Gibson.

May 24 and 25, 1935.—WASHINGTON.—The annual convention of the Association of Master Plumbers of the State of Washington, at Port Angeles, Washington, with headquarters at the Elks Club.

June 11, 12, 13 and 14, 1935.—N. D. H. A.—Annual convention of National District Heating Association, in Philadelphia, Pa., with headquarters at the Bellevue-Stratford Hotel.

June 25, 26 and 27, 1935.—N. A. M. P.—The 53rd annual convention of the National Association of Master Plumbers, at Chicago, with headquarters at the Stevens Hotel.

August 6, 1935.—VERMONT.—The annual convention of the Vermont State Association of Master Plumbers, Inc., at Montpelier, Vermont, with headquarters at the City Hall.

October 14-18, 1935.—A. G. A.—The seventeenth annual convention of the American Gas Association, at Atlantic City, N. J.

New Contractors and Incorporations

Stamford, Conn.—The Spelke Plumbing and Heating Company has started in business at 611 Main Street.

San Francisco, Calif.—Robert Gibson has opened a plumbing and heating business at 1506 Vallejo Street.

Milwaukee, Wis.—John M. Brennan has opened a plumbing and heating business at 2928 West Clybourn Street.

Columbus, Ohio.—Earl H. Dunn has organized the Superior Plumbing & Heating Company and has started in business at 1267 West Fifth Avenue.

Wausau, Wis.—The Acme Heating & Ventilating Company of Chicago has opened a branch establishment here, under the management of L. F. Sargent.

Long Beach, Calif.—The Pacific Plumbing Company has opened a plumbing and heating business at 714 Orange Avenue, under the management of Harold Leroy Dunwoody.

Los Angeles, Calif.—The Pico Plumbing and Heating Company has opened a plumbing and heating contracting business at 210 West Pico Street, under the management of Oren D. Wickizer.

Eau Claire, Wis.—A. E. Bergman, Inc., has been incorporated to conduct a heating business at 304 Fourth Avenue. The incorporators are A. E. Bergman, G. F. Brunner and W. C. Crocker.

Portland, Oreg.—The Martin Morlan Plumbing Company has opened a plumbing and heating business at 521 N. E. Alberta Street. The officers of the company are Martin T. Morlan and E. W. Morlan.

Paterson, N. J.—Morris Kaminetsky and Garry Fishbein have formed a partnership under the name of Garratt Plumbing & Heating Company and have opened a showroom and shop at 1072 Madison Avenue.

Business Changes

Chicago, Ill.—Thomas H. Litvin Plumbing Company has recently moved to larger quarters at 610 West Randolph Street.

New York, N. Y.—A. E. Hansen, Inc., has moved its consulting sanitary and hydraulic engineering office to 415 Lexington Avenue.

New York, N. Y.—Reis & O'Donovan, Inc., heating and ventilating engineers, have moved their offices to 12 West Twenty-first Street.

ACTIVITIES

By DOROTHY EDWARDS

Ohio Women's Auxiliary Holds Annual Convention

The Women's Auxiliary of the Ohio State Association of Master Plumbers held its annual convention at Columbus, Ohio, February 4 to 6. This meeting, which was held in conjunction with the forty-fourth annual convention of the Ohio State Association of Master Plumbers, was a well attended and successful affair.

Mrs. Ed. Maurer of Cleveland was elected president of the auxiliary for the ensuing year, and Mrs. Charles L. Arting of Mansfield was elected vice president. Mrs. William Grabowsky of Canton was named secretary, and the treasurer is Mrs. M. F. Reilly of Youngstown.

The members of the Auxiliary attended the memorial services at the opening session of the master plumbers' convention and then gave the entertainment program their attention.

The business meeting was held on Tuesday afternoon. At this session, in addition to electing officers and handling routine matters, it was voted to continue the Founders' Day Fund, as well as the Student Fund for Girls. Mrs. Jacob Brenner of Warren was elected an honorary member in recognition of the work she has done for the auxiliary.

Oklahoma City Women's Auxiliary Elects New Officers

The Women's Auxiliary of the Master Plumbers' Association of Oklahoma City, Okla., held its annual meeting on Monday, February 4, and elected the following officers: President, Mrs. A. H. Moore; vice-president, Miss Estelle Burnside; secretary and treasurer, Mrs. Ralph De Lautre.

Women's Auxiliary of Queens Celebrates Birthday

The members of the Women's Auxiliary of the Master Plumbers' Association of Queens, N. Y., held its regular business meeting on February 6, after which they celebrated the auxiliary's third birthday. It was a colorful affair with a large birthday cake, favors and refreshments for all. Every member present had a thoroughly enjoyable time.

Rockaways Women's Auxiliary Installs New Officers

The Women's Auxiliary to the Master Plumbers Association of the Rockaways, Long Island, N. Y., recently installed its new officers for 1935, as follows: President, Mrs. W. MacNaught; first vice president, Mrs. S. Friedlander; second vice president, Mrs. Edw. Strosheim; secretary, Mrs. Murray Rosen; treasurer, Mrs. George McGovern, and chairman of board of trustees, Mrs. M. Tremper.

The installing officer was Mrs. Wm. W. Metcalf of Rockville Centre, president of the New York State Auxiliary, who was ably assisted by Mrs. Peter Scott of Far Rockaway as marshal.

The meeting was held in the American Legion Building in Far Rockaway.

Nassau County Women's Auxiliary Elects Officers

The Women's Auxiliary of Nassau County, N. Y., held its regular meeting recently and elected the following officers for 1935: Mrs. Edward Seltzer, president; Mrs. Wm. Bloeth, vice-president; Mrs. John Nielson, secretary; Mrs. Jas. Metcalf, treasurer; Mrs. Wm. Kleb, Mrs. Wm. Metcalf and Mrs. Jos. Riedman, trustees.

North Shore Auxiliary Holds Dinner Dance

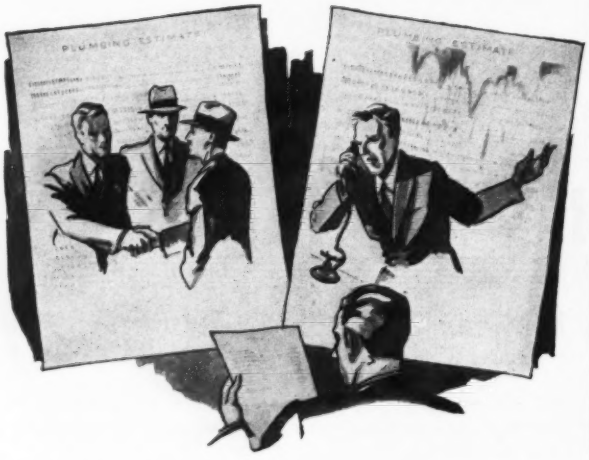
Fifty master plumbers and their ladies attended the Annual Dinner Dance given by the Women's Auxiliary of the North Shore Master Plumbers' Association at Ridgeview Hotel, Evanston, Ill., on Saturday, February 16th. In addition to the master plumbers, representatives of some of the plumbing supply houses were also in attendance. William Mergenthaler of Evanston acted in the capacity of toastmaster. Chas. E. Gawne, secretary of the National Association of Master Plumbers, was among the guests and made a brief talk on the benefits of organization. William R. Brookman, secretary of the Illinois Master Plumbers' Association, was called upon for a few remarks, and Mrs. Robert Liss of Chicago, president of the Women's Auxiliary of the National Association of Master Plumbers, also made a short talk. Following the dinner dancing was indulged in until a late hour.

Kansas City Auxiliary Holds 24th Annual Meeting

The twenty-fourth annual meeting of the Women's Auxiliary to the Association of Master Plumbers of Kansas City, Mo., was held at the home of Mrs. Ervin Spaette, recording secretary and former president, on February 14.

After luncheon and a social interval, the meeting and election of officers followed. The results were: President, Mrs. E. D. Hornbrook; first vice president, Mrs. C. Herold; second vice president, Mrs. W. R. Dunlap; third vice president, Mrs. W. J. Ernst; recording secretary, Mrs. Ervin Spaette; corresponding secretary, Mrs. M. C. Enggas; treasurer, Mrs. Frank Smith.

The president's report on the year's work was interesting. The Needlework Guild donated 167 garments and twelve



Does Your Bid Reflect Your Confidence or Your Fear?

The plumbing contractor always gets the blame personally when a pipe installation fails—even though his workmanship may have been perfect. With prestige and reputation at stake the wise bidder generally figures on "Chester." Such bids reflect the confidence that "Chester" pipe will render years of trouble free service.

Because of nearness to your market we can assure you of prompt and economical delivery of Chester Pipe. Write for full particulars.

"Good enough" methods are not good enough for CHESTER

South Chester Tube Co.
CHESTER, PA.
New York Office: 30 Church Street
Pittsburgh Los Angeles San Francisco
Fort Worth Tulsa Houston

CHESTER STEEL PIPE

flannel robes to the Visiting Nurses' Association. The members of the auxiliary are looking forward to the forthcoming state convention which is to be held in Kansas City.

Wisconsin Auxiliary Holds Annual Convention in Milwaukee

The Women's Auxiliary to the Wisconsin Association of Master Plumbers held a successful annual convention in Milwaukee, January 29 to 31. The sessions were held at the Pfister Hotel. A reception and luncheon on the first day preceded the opening business session, which was held in the afternoon.

Mrs. Robert Liss of Chicago, national president, was the guest of the Wisconsin auxiliary for the entire convention and addressed the meeting on several occasions. Mrs. Liss was the principal speaker at the luncheon on January 30, which was attended by 109 ladies. Mrs. Fred Kuetemeyer of Milwaukee, first vice president of the national auxiliary, also spoke.

The following officers were elected for the ensuing year: Mrs. L. C. Pugh, Racine, president; Mrs. David Stern, Milwaukee, first vice president; Mrs. Charles Heffling, Jr., Milwaukee, second vice president; Mrs. Walter Dusold, Milwaukee, third vice president; Mrs. Joseph J. Mueller, Milwaukee, recording secretary; Mrs. James A. Murphy, Racine, corresponding secretary; Miss Clara J. Wittig, Milwaukee, treasurer, and Mrs. Rose Friend, Milwaukee, chaplain.

Mrs. Friend served as installing officer during the installation ceremony, and Mrs. Otto A. Waskow, Milwaukee, served as marshal. All the new officers were presented with corsages.

On January 31 the delegates were taken on a tour through the Pabst Brewing Company plant. In the evening there was a dinner dance attended by 400 persons.

Newton Auxiliary Plans Bridge Party for State Auxiliary

The Women's Auxiliary to the Master Plumbers Association of Newton, Mass., held its regular monthly meeting at Bond's Restaurant in that city on Wednesday evening, February 13th. Mrs. J. T. Ryan was hostess, and eighteen sat down to an excellent chicken dinner. Plans were discussed for a bridge party for the State Auxiliary, which is to be held some time in March. Whist was played with honors going to Mrs. L. W. Stevens, Mrs. L. J. Hickman and Mrs. R. T. Leahy. The Auxiliary prize donated by Mrs. L. W. Stevens was won by Mrs. Stevens.

The Newton Auxiliary will hold its annual meeting and election of officers in April.

Boston Auxiliary to Install New Officers

The February meeting of the Women's Auxiliary to the Boston Master Plumbers Association was held at the home of Mrs. Andrew F. Curtin, Medford, on Tuesday evening, February 19. This meeting had a good attendance, the ladies enjoying themselves during the meeting sewing tulips on squares of cotton, to be finished into a quilt.

The installation of officers occurring in March, it was voted to hold that meeting in a Boston hotel, the date being set for March 19. The women are anxious to have a 100 per cent attendance.

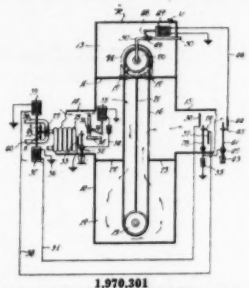
Mrs. Frank Schuster, wife of a well-known Chicago Master Plumber, passed away at her home, 416 Surf Street, Chicago, on February 8th, her death being due to a stroke of apoplexy. Mrs. Schuster was well-known by the trade throughout the country, having attended many national conventions with her husband, Frank Schuster, who has been retired from the plumbing business for a number of years.

NEW IDEAS FROM PATENT OFFICE

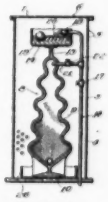
Heating Department

1,970,301. Air Conditioning Method and Apparatus. Edward M. Frankel, New York, N. Y.

1,970,234. Means for and Method of Humidifying Air. Lyman C. Huff, Winnetka, Ill.



1,970,301
AIR CONDITIONING METHOD AND APPARATUS

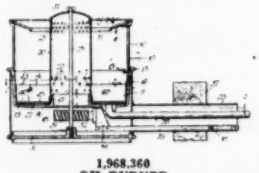


1,970,234
MEANS FOR AND METHOD OF HUMIDIFYING AIR

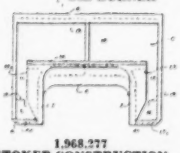
1,968,360. Oil Burner. William B. Sturgis, Chicago, Ill.

1,968,277. Stoker Construction. Royce L. Beers, Detroit, Mich., assignor to Detroit Stoker Company, Detroit, Mich., a corporation of Michigan.

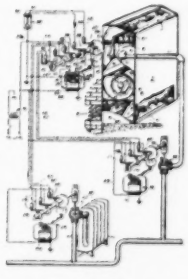
1,968,325. Control for Air Conditioning Systems. Duncan J. Stewart, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.



1,968,360
OIL BURNER

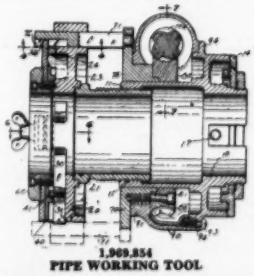


1,968,277
STOKER CONSTRUCTION

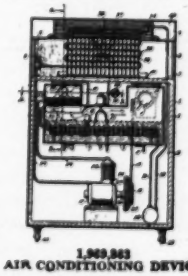


1,968,325
CONTROL FOR AIR CONDITIONING SYSTEMS

1,969,854. Pipe Working Tool. Robert B. Pealer, Parkman, and Clarence W. Shafer, Warren, Ohio, assignors to The Borden Company, Warren, Ohio, a corporation of Ohio.



1,969,854
PIPE WORKING TOOL



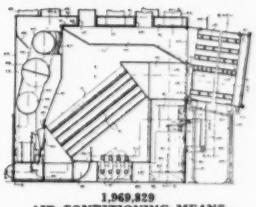
1,969,863
AIR CONDITIONING DEVICE

1,969,863. Air Conditioning Device. John J. Strang and Emile P. Brus, Kansas City, Mo., assignors to Strang Air Conditioning Corporation, Kansas City, Mo., a corporation of Missouri.

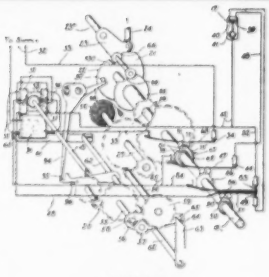
1,969,829. Air Conditioning Means. Frank A. Whiteley, Minneapolis, Minn.

1,969,733. Control for Heating Systems. George Forrest Drake, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.

1,968,707. Pipe Wrench. James G. Richards, Detroit, Mich., assignor of one-third to Montie P. Atkins and one-third to Dewey G. White, both of Florence, Ala.

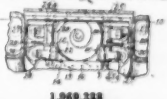


1,969,829
AIR CONDITIONING MEANS



1,969,733
CONTROL FOR HEATING SYSTEMS

1,968,707
PIPE WRENCH

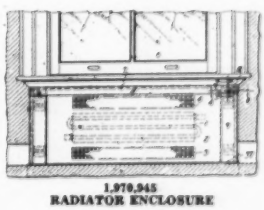


1,969,338
STOKER

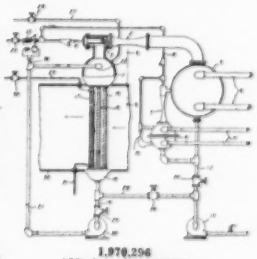
1,969,338. Stoker. Edwin Archer Turner, New York, N. Y., assignor to The Standard Stoker Company, Incorporated, a corporation of Delaware.

1,970,945. Radiator Enclosure. Albert B. Rypinski, Laurelton, Long Island, N. Y., assignor, by mesne assignments, to American Radiator and Standard Sanitary Corporation, New York, N. Y., a corporation of Delaware.

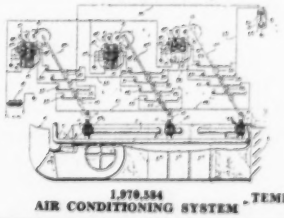
1,970,296. Air Conditioner. Walter L. Fleisher, New York, N. Y.



1,970,945
RADIATOR ENCLOSURE



1,970,296
AIR CONDITIONER



1,970,584
AIR CONDITIONING SYSTEM

1,970,987
TEMPERATURE CONTROL APPARATUS

SAFE TO INSTALL WHERE CHILDREN PLAY

YOU can (if necessary) install a Burks' Super Turbine Pump for the home **in the playroom of the children** without any danger to them. No moving parts exposed on a Burks.

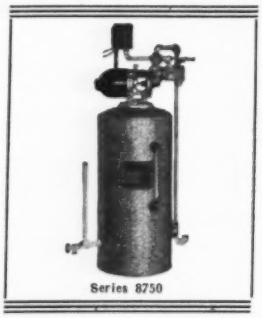
What a Pump to Sell!

No belts, no gears, no valves, no plungers, no leathers, no springs, no cranks, no pistons. **Just one moving part and it is concealed!**

This Safety feature alone is enough in itself to meet any kind of competition. Many dealers are doing a large replacement business in addition to new business. With the Burks line you can dominate your market. New lower priced models now available.

In addition to **Safety** The Burks Pumps are quiet — no pounding — no vibration — self-priming and will operate for many years without service. Many in use over 14 years. Guaranteed to pump water from a depth of 28 feet which is 6 feet farther than many pumps can go.

Special sales help for dealers. Write today for complete information. You can make more money with the Burks line.



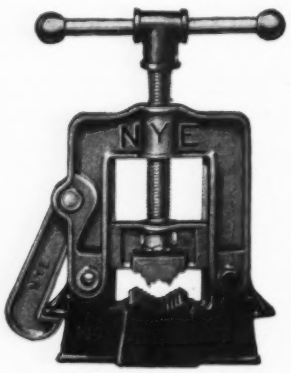
Series 8750

DECATUR PUMP COMPANY
Decatur Illinois

BURKS SUPER-TURBINE PUMPS
Only one moving part
"A Life-Time of SERVICE"

NYE TOOLS

Nye Vises With FULL GRIP Jaws



THESE vises are equipped with two piece full jaws for holding iron or brass pipe or nickel plated tubing. Furnished in five sizes covering a range from ⅛" to 4½".

ASK YOUR JOBBER

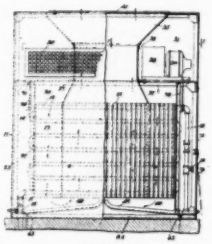
***The* NYE Tool & Machine Works**
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

1,970,584. Air Conditioning System. Duncan J. Stewart, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.

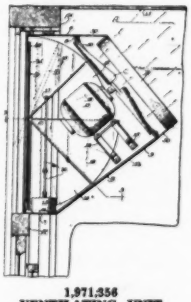
1,970,987. Temperature Control Apparatus. Daniel G. Taylor, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

1,971,173. Heating and Cooling Apparatus. Irving T. Bennett, Rome, and Frank C. Reynolds, New York, N. Y., assigners, by mesne assignments, to Metropolitan Engineering Company, a corporation of New York.

1,971,356. Ventilating Unit. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.

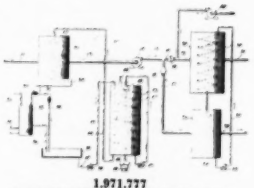


1,971,173
HEATING AND COOLING APPARATUS

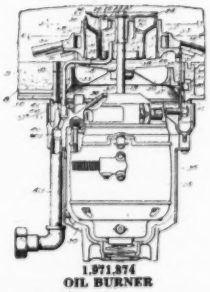


1,971,356
VENTILATING UNIT

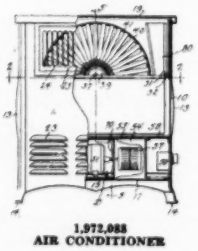
1,971,777. Method and Apparatus for Conditioning Air. Henry O. Forrest, Teaneck, and Lee Van Horn, Elizabeth, N. J.



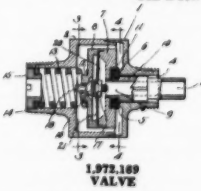
1,971,777
METHOD AND APPARATUS FOR CONDITIONING AIR



1,971,874
OIL BURNER



1,972,088
AIR CONDITIONER

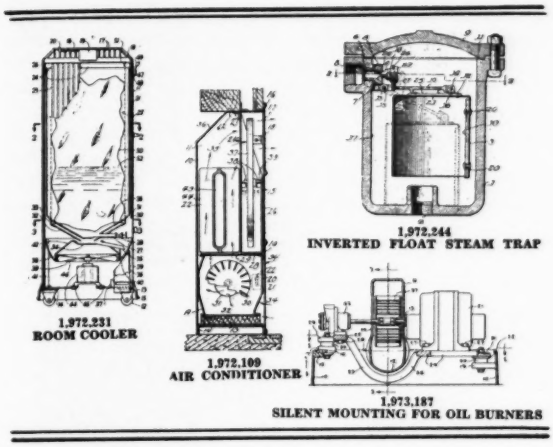


1,972,169
VALVE

1,971,874. Oil Burner. Stanley Perry, Chicago, Ill., assignor to Automatic Burner Corporation, Chicago, Ill., a corporation of Illinois.

1,972,088. Air Conditioner. Lachlan W. Child, Toledo, Ohio, assignor to Air-Way Electric Appliance Corporation, Toledo, Ohio, a corporation of Delaware.

1,972,169. Valve. John A. Spencer, Newton, Mass., assignor to Spencer Thermostat Company, Cambridge, Mass., a corporation of Massachusetts.



1,972,231. Room Cooler. John C. Malm and Raymond C. Walsh, Los Angeles, Calif., assignors to California Consumers Company, Los Angeles, Calif., a corporation of Delaware.

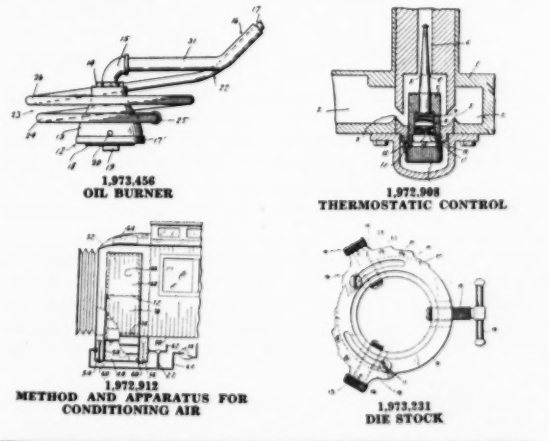
1,972,109. Air Conditioner. Frederick Riebel, Jr., and Lachlan W. Child, Toledo, Ohio, assignors to Air-Way Electric Appliance Corporation, Toledo, Ohio, a corporation of Delaware.

1,972,244. Inverted Float Steam Trap. Hans E. K. Pohl, River Forest, Ill., assignor to Crane Co., Chicago, Ill., a corporation of Illinois.

1,973,187. Silent Mounting for Oil Burners. Josiah Howard Van Sciver, Philadelphia, Pa., assignor to Oil-Electric Engineering Corporation, Bethlehem, Pa., a corporation of Delaware.

1,973,456. Oil Burner. Charles Robert Wilson, Ardmore, Okla.

1,972,908. Thermostatic Control. William H. Shaw, South Bend, Ind.

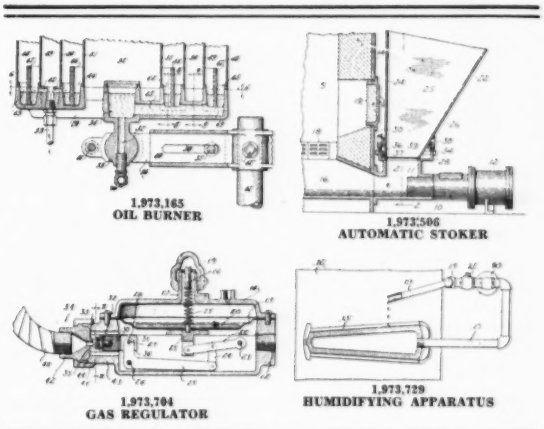


1,972,912. Method and Apparatus for Conditioning Air. Samuel M. Anderson, Sharon, Mass., assignor to B. F. Sturtevant Company, Hyde Park, Mass., a corporation of Massachusetts.

1,973,231. Die Stock. William O. Thewes, North Ridgeville, Ohio, assignor to The Ridge Tool Company, North Ridgeville, Ohio, a corporation of Ohio.

1,973,165. Oil Burner. Joseph Fioroni, Westfield, Mass.

1,973,506. Automatic Stoker. Robert M. Robertson, Toronto, Ontario, Canada, assignor to Riley Stoker Corporation, Worcester, Mass., a corporation of Massachusetts.

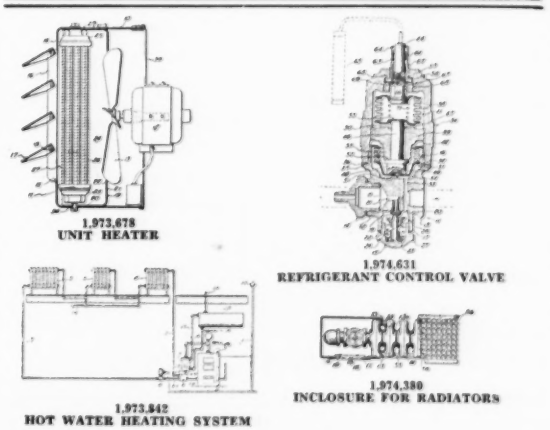


1,973,704. Gas Regulator. William C. Groble, Anderson, Ind., assignor, by mesne assignments, to Mueller Co., Decatur, Ill., a corporation.

1,973,729. Humidifying Apparatus. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.

1,973,678. Unit Heater. Joseph Askin, Buffalo, N. Y., assignor to Fedders Manufacturing Company, Inc., Buffalo, New York.

1,974,631. Refrigerant Control Valve. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Manufacturing Company, Inc., Buffalo, N. Y.



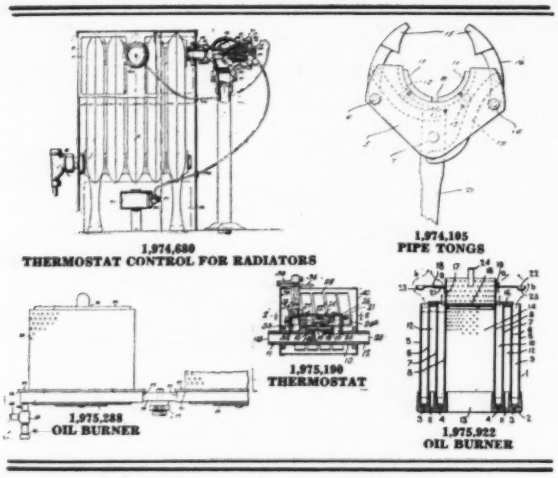
1,973,842. Hot Water System. Frederick Charles Broderick, Winnetka, Ill.

1,974,380. Inclosure for Radiators. Frank E. Seeley, Rye, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.

1,974,680. Thermostat Control for Radiators. William B. Mackintosh, Knoxville, Tenn., assignor to The Fulton Sylphon Company, Knoxville, Tenn., a corporation of Delaware.

1,974,105. Pipe Tongs. Clarence Alex Eagan, Barnsdall, Okla.

1,975,288. Oil Burner. Joseph Gaunt Redshaw, East Lynn, Mass., assignor, by mesne assignments, to Perfect Burner Company, a corporation of Massachusetts.

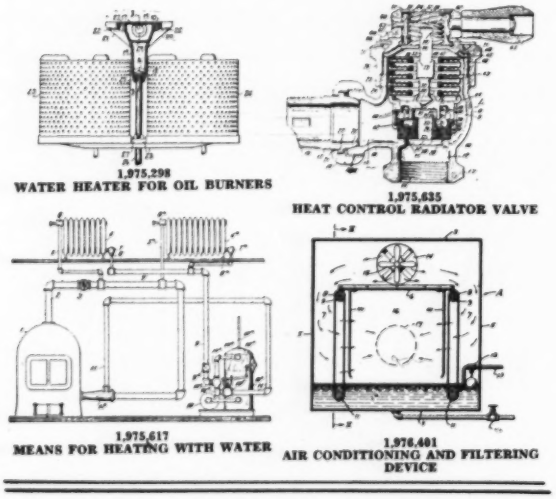


1,975,190. Thermostat. Nico Borresen, Los Angeles, Calif.

1,975,922. Oil Burner. William S. Caswell, Lynn, Mass.

1,975,298. Water Heater for Oil Burners. Edward N. St. John, East Haven, Conn.

1,975,635. Heat Control Radiator Valve. Clayton A. Dunham, Glencoe, Ill., assignor to C. A. Dunham Company, Marshalltown, Iowa, a corporation of Iowa.



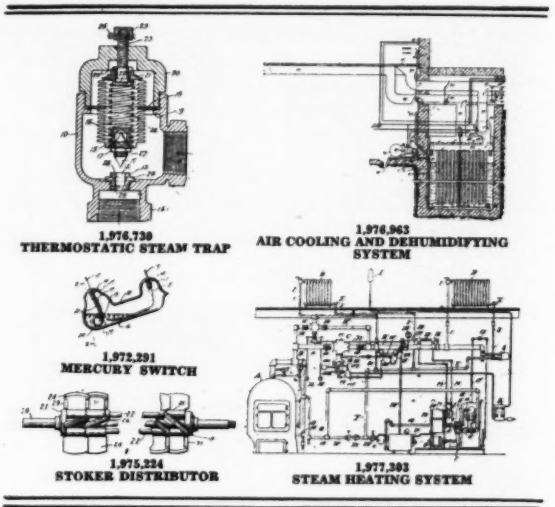
1,975,617. Means for Heating with Water. Bo Folke Randel, San Diego, Calif., assignor to C. A. Dunham Company, Marshalltown, Iowa, a corporation of Iowa.

1,976,401. Air Conditioning and Filtering Device. Robert A. Ilg, San Francisco, Calif., assignor to Ilg Electric Ventilating Company, Chicago, Ill., a corporation of Louisiana.

1,976,730. Thermostatic Steam Trap. Lawrence C. Irwin, Brooklyn, N. Y., assignor to Charles J. Tagliabue Mfg. Co., Brooklyn, N. Y., a corporation of New York.

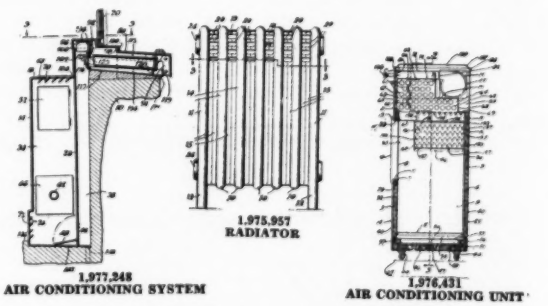
1,976,963. Air Cooling and Dehumidifying System. Lawrence M. Persons, Des Moines, Iowa, assignor to Penn Electric Switch Co., Des Moines, Iowa, a corporation of Iowa.

1,972,291. Mercury Switch. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.



1,977,303. Steam Heating System. David N. Crosthwait, Jr., Marshalltown, Iowa, assignor to C. A. Dunham Company, Marshalltown, Iowa, a corporation of Iowa.

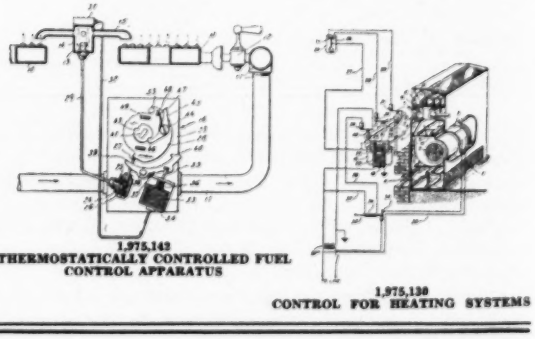
1,975,224. Stoker Distributor. John P. Cox, Evanston, Ill., assignor, by mesne assignments, to E. C. Ladenson, Evanston, Ill.



1,977,248. Air Conditioning System. James A. Space, East Orange, N. J., assignor to Doherty Research Company, New York, N. Y., a corporation of Delaware.

1,975,957. Radiator. Walter E. Kuenstler, Grantwood, New Jersey.

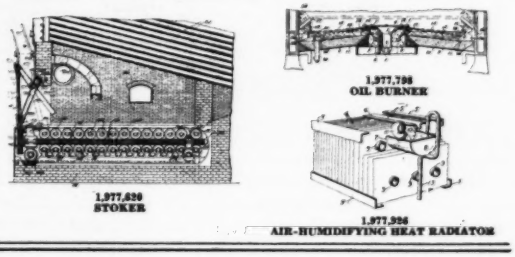
1,976,431. Air Conditioning Unit. George B. Bright, Detroit, Mich.



1,975,142. Thermostatically Controlled Fuel Control Apparatus. Edward L. Fonseca, Newark, N. J., assignor to The Wilcolator Company, Newark, N. J., a corporation of Delaware.

1,975,130. Control for Heating Systems. Duncan J. Stewart, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.

1,977,620. Stoker. Francis H. Brown, Ridley Park, Pa., assignor to The Real Estate-Land Title and Trust Company, a corporation of Pennsylvania.

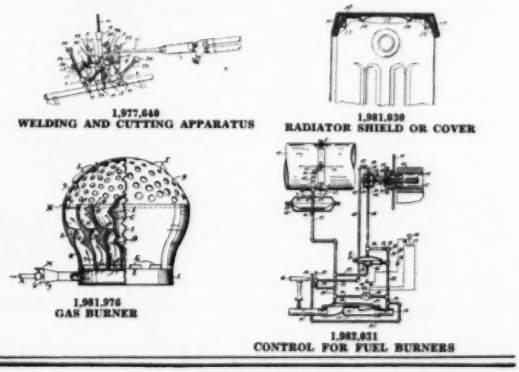


1,977,798. Oil Burner. John C. Karth, Maplewood, N. J.

1,977,926. Air-Humidifying Heat Radiator Max L. Waterman, Fairfield, Conn.

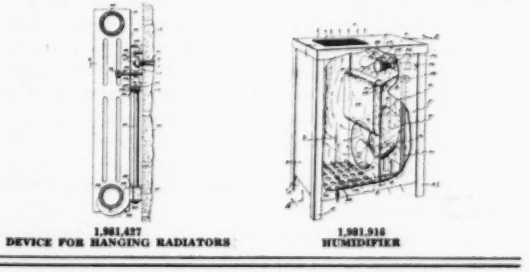
1,977,640. Welding and Cutting Apparatus. Walter R. Linden, Palisades Park, N. J., assignor to The Linde Air Products Company, a corporation of Ohio.

1,981,030. Radiator Shield or Cover. Joseph P. Collins, St. Louis, Mo.

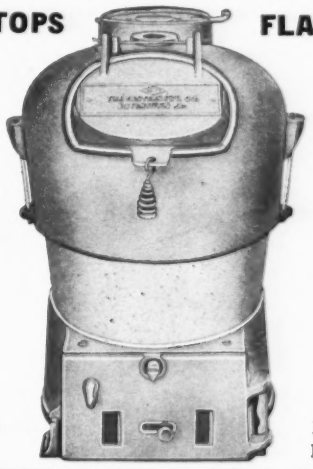


1,981,976. Gas Burner. Abraham L. Vem, Topeka, Kan.

1,982,031. Control for Fuel Burners. Willet E. Stark, East Cleveland, Ohio, assignor, by mesne assignments, to The Bryant Heater Company, Cleveland, Ohio, a corporation of Ohio.



Eafco-Peerless
TANK HEATERS
DOME TOPS FLAT TOPS



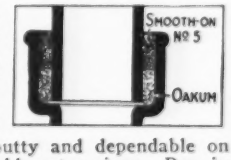
Full Dimensions
Greater Weight
Conservative Ratings
Dependable Performance

ATTRACTIVELY FINISHED IN GREEN AND GREY
COMPLETE RANGE OF SIZES

A QUALITY LINE
EAFCO TRADE MARK
IT WILL PAY YOU TO SELL

Write Us for Catalogues on Complete Eafco Line
THE EASTERN FOUNDRY CO.
BOYERTOWN, PA.

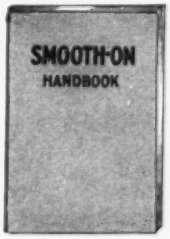
For caulked bell-and-spigot joints at difficult locations, use Smooth-On No. 5



WHERE caulking with lead would be difficult, as in making joints in corners, confined places and horizontal lines, Smooth-On No. 5 makes a tight joint with least effort, and no fire risk or danger of burns. Applied cold like a putty and dependable on soil, gas, steam and hot or cold water pipes. Buy in 1 or 5-lb. can, or 25 or 100-lb. steel keg.

Write for the Smooth-On Handbook

136 Pages of instructions, diagrams and useful information for plumbers, heating contractors, shop managers and power plant engineers. Tells what you want to know about making tight joints at pipe connections, seams, cracks, etc., making loose parts tight, anchoring in wood, masonry and metal, etc. The methods outlined save time, labor and material and represent the best practice. Keep a copy on your desk.



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SMOOTH-ON MFG. CO., Dept. 12
570 Communipaw Ave., Jersey City, N. J.

Do it with **SMOOTH-ON**

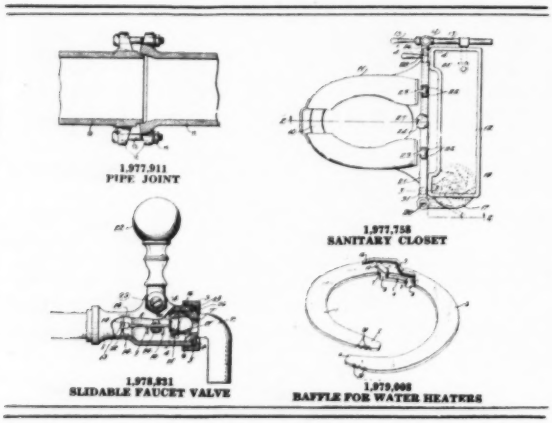
1,981,427. Device for Hanging Radiators. Albert C. Sandberg, La Fayette, Ind.

1,981,916. Humidifier. Burton L. Huntley, Minneapolis, Minn.

Plumbing Department

1,977,911. Pipe Joint. Anton Hansen, Newark, N. J., assignor to The Universal Pipe and Radiator Company, New York, N. Y., a corporation of Maryland.

1,977,758. Sanitary Closet. Percy H. Epler, East Boothbay, Maine.

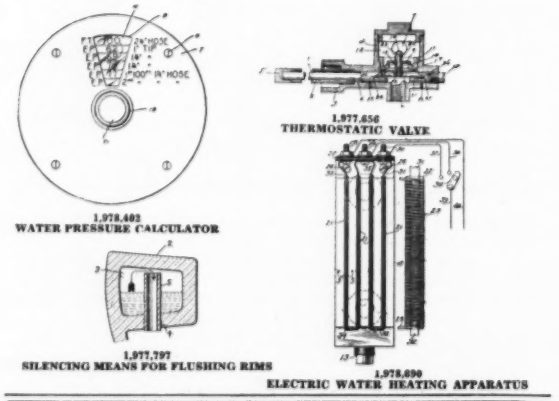


1,978,831. Slidable Faucet Valve. Sivert Zetterstrom, Belleville, N. J.

1,979,008. Baffle for Water Heaters. Clarence H. Morrow, Cleveland, Ohio, assignor to The Hotstream Heater Company, Cleveland, Ohio, a corporation of Ohio.

1,978,402. Water Pressure Calculator. Mathias R. Crane and Ernest F. Coop, Pasadena, Calif.

1,977,656. Thermostatic Valve. Sidney P. Vaughn, United States Navy, Ackerman, Miss.

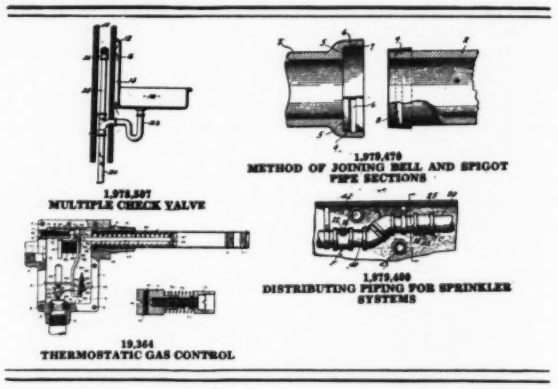


1,977,797. Silencing Means for Flushing Rims. Carl J. Kohler and Gordon P. Gavin, Kohler, Wis.

1,978,690. Electric Water Heating Apparatus. Eric S. Peterson, Lexington, Mass.

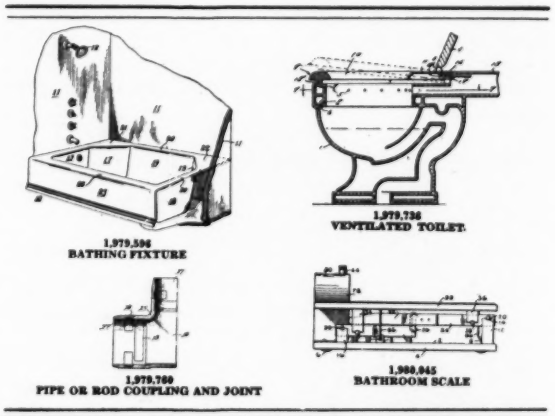
1,978,507. Multiple Check Valve. Henry J. Rand, Kansas City, Kans.

1,979,470. Method of Joining Bell and Spigot Pipe Sections. James C. Johnston, Seattle, Wash., assignor to Gladding McBean & Company, a corporation of California.



19,364. Thermostatic Gas Control. Harold W. Price, Toronto, Ontario, Canada, assignor, by mesne assignments, to Robertshaw Thermostat Company, Youngwood, Pa., a corporation of Pennsylvania.

1,979,400. Distributing Piping for Sprinkler Systems. Patrick J. Neilon, Cleveland, Ohio, assignor to The Grabler Manufacturing Company, Cleveland, Ohio, a corporation of Ohio.



1,979,596. Bathing Fixture. Arthur P. Woolfolk, Pittsburgh, Pa., assignor to Standard Sanitary Manufacturing Company, a corporation of New Jersey.

1,979,736. Ventilated Closet. John H. Etter, San Francisco, Calif.

1,979,760. Pipe or Rod Coupling and Joint. Frank H. Mueller, Decatur, Ill., assignor to Mueller Co., Decatur, Ill., a corporation of Illinois.

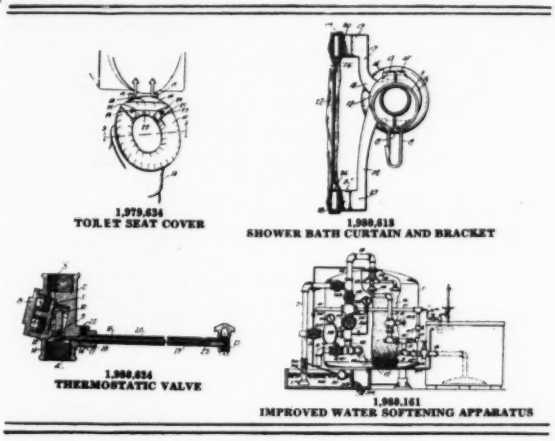
1,980,045. Bathroom Scale. Irving Florman, New York, N. Y.

1,979,926. Water Softener. Robert E. Zinn, Chicago Heights, Ill., assignor to Victor Chemical Works, Chicago, Ill., a corporation of Illinois. A water softener comprising a flake having a thickness of the order of .001 of an inch substantially of a compound of the class consisting of alkali metal meta and pyrophosphates and mixtures thereof, and having spotted on the surface thereof a minor proportion of crystals of a compound of the class consisting of alkali metal orthophosphates and carbonates.

1,979,634. Toilet Seat Cover. Arvid Nelson, Jamestown, N. Y.

1,980,618. Shower Bath Curtain and Bracket. Nathaniel Gaines, Elizabeth, N. J.

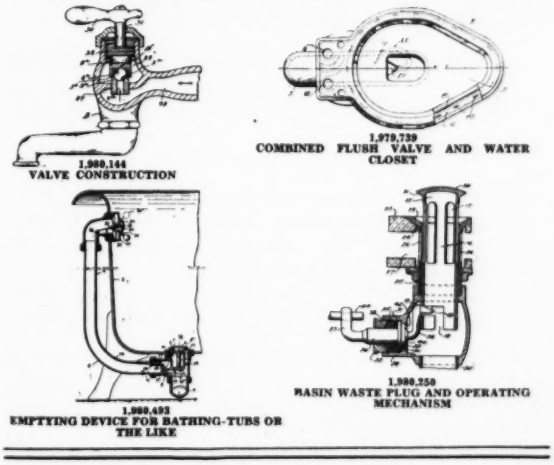
1,980,624. Thermostatic Valve. John J. Kenney, Pittsburgh, Pa.



1,980,161. Improved Water Softening Apparatus. Samuel B. Applebaum, New Rochelle, N. Y., assignor to The Permutit Company, New York, N. Y., a corporation of Delaware.

1,980,144. Valve Construction. Salvatore U. Siena and Benjamin M. Arth, Cleveland, Ohio, assignors, by mesne assignments, to Ball-Rite Valve Company, Cleveland, Ohio, a corporation of Ohio.

1,979,739. Combined Flush Valve and Water Closet. William C. Groeniger, Columbus, Ohio, assignor to Mueller Co., Decatur, Ill., a corporation of Illinois.



1,980,493. Emptying Device for Bathing-Tubs or the Like. Jacques Henry Morisseau, Paris, France.

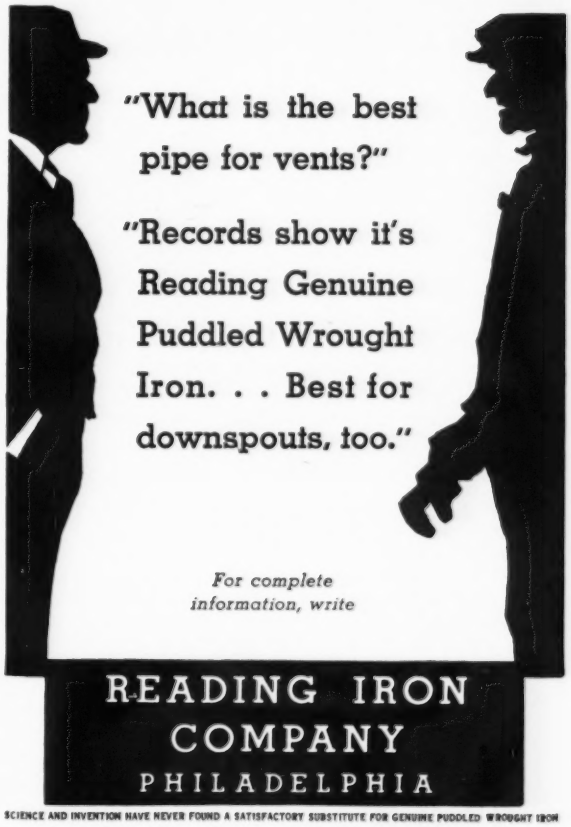
1,980,250. Basin Waste Plug and Operating Mechanism. William Baxter, Westmount, Quebec, Canada, assignor to Crane Limited, Montreal, Quebec, Canada.

1,981,386. Towel Servidor. August I. Hondeville, Merced, Calif., assignor, by direct and mesne assignments, to Serv-A-Towel Manufacturing Company, San Francisco, Calif., a corporation.

1,982,044. Pipe Joint. Stuart B. Clark, Riverton, N. J., assignor to United States Pipe and Foundry Company, Burlington, N. J., a corporation of New Jersey.

1,981,020. Water Closet Bowl. Carl H. Zwermann, Robinson, Ill.; Helene Zwermann and Carl H. Zwermann, Jr., executrix and executor of said Carl H. Zwermann, deceased.

1,982,348. Intercepting Drain. Willard J. Luff, Cleveland, Ohio, assignor to J. A. Zurn Manufacturing Company, Erie, Pa., a corporation of Pennsylvania.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PROOF

Owners of Dahlquist Turbo Hot Water Storage Units report monthly savings on their gas and electric bills of as much as 50%. This remarkable economy means that the new Dahlquist heater saves enough on the monthly fuel bills to pay for itself in 18 months and thereafter pays a monthly dividend. This Dahlquist invention, the Turbo, prevents sediment from forming, stops costly burnouts, reduces cost of fuel, and gives sediment-free crystal clear water—fit for cooking at all times.

Learn about this modern automatic hot water storage system:—uses 50% less gas, gives crystal clear hot water day and night.

Dahlquist Turbo Super Aquatherm Underfire Hot Water Storage System

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ABINGDON SANITARY MANUFACTURING CO. ABINGDON, ILLINOIS

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30, 40 and 50 Gallons
200, 250 and 300 lb. Test

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

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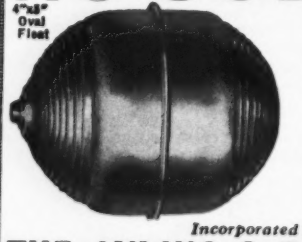

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THE AYLING & REICHERT CO.

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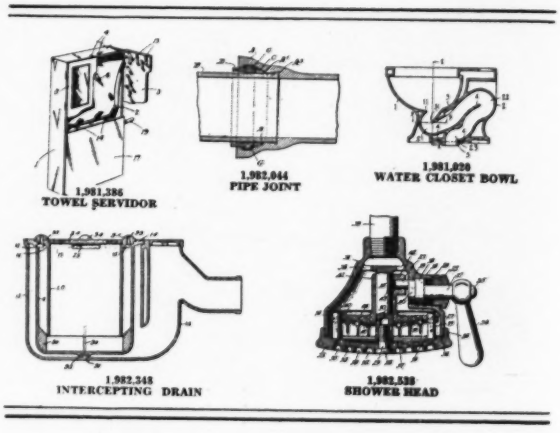
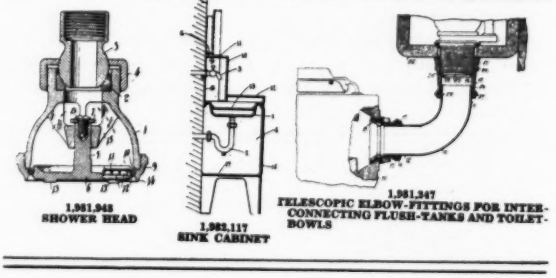


1,982,538. Shower Head. Emmett M. Reedy, Decatur, Ill., assignor to Mueller Co., Decatur, Ill., a corporation of Illinois.

1,981,948. Shower Head. William Henry Darling, London, Ontario, Canada.



1,982,117. Sink Cabinet. Archibald M. Mario, Detroit, Mich.

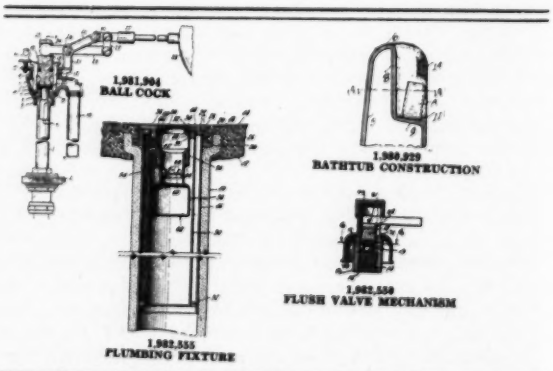
1,981,247. Telescopic Elbow-Fittings for Inter-Connecting Flush-Tanks and Toilet-Bowls. Elton A. Pope, Waterbury, Conn., assignor to The Chase Companies, Incorporated, Waterbury, Conn., a corporation.

1,981,904. Ball Cock. Herbert D. Clemmons, Sturgis, Mich., assignor to Scovill Manufacturing Company, Sturgis, Mich.

1,980,929. Bathtub Construction. Paul L. Potter, Belmont, Calif.

1,982,550. Flush Valve Mechanism. John L. Skuttle, Mason City, Iowa.

1,982,555. Plumbing Fixture. Henry Van Der Horst, Chicago, Ill.



Competition—

(Continued from Page 55)

turn of the faucet draws a stream of steaming hot water in an instant. Then we take the prospect back to the heater where he can see the gas burning high, automatically regulating itself to the flow of water used. That is a demonstration, almost without words, that any buyer can visualize and the sale is almost, but not quite made. Price may still be a factor with him. In this climate, however, most ordinary water heaters fail to function after five years of use. Then we point out how the inner boiler can be removed and a new one installed at a nominal sum without the expense of a whole new heater. He can see it in the cut out sample before him. The final test, then, is to show him a section of pipe and boiler filled with lime, and that usually completes the sale.

"We sell far more high priced heaters than cheap ones through this demonstration, and our customers are glad that they paid the difference for the outfit that is the most economical for them, and the most satisfactory in the long run.

"One of my customers came in recently, bringing a neighbor along. To my amazement, he started right in to make a complete demonstration, telling him point by point what a fine heater it was. I didn't get a chance to butt in, nor was it necessary. My customer made the sale, and all I had to do was crank it up on the cash register, and of course, make delivery and installation.

Reader Questions—

(Continued from Page 68)

of 500 gallons heated 100 degrees divided by 3 during the three hour period. In E.d.r. the calculation shows

$$\frac{500 \times 8\frac{1}{3} \times 100}{240 \times 3} \text{ or } 578.7 \text{ sq. ft. E.d.r.}$$

It will be seen that the continuous load is very small compared with the draw-off load which is at the rate of 41,664/2 or 20,832 sq. ft. E.d.r.

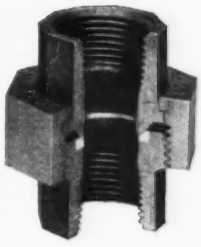
If storage (net) is provided for the whole 1,000 gallons, then the instantaneous load falls to zero as the water has all been heated and stored during the three hour period ready for the draw-off at the end of the period. The continuous load—and, at the same time, the maximum load—on the boiler will then become

$$\frac{1{,}000 \text{ gal.} \times 8\frac{1}{3} \times 100}{240 \times 3} \text{ or } 1{,}157 \text{ sq. ft. E.d.r.}$$

It will be seen that this is a whole lot different than the instantaneous heater load of 41,664 sq. ft. E.d.r. and it is the least load which can be introduced on the boiler and still supply the amount of hot water in the period required.

The coil surface in each case would have to be sufficient to heat the quantity of water necessary in the time available which would be a coil to heat 12,000 g.p.h. in the instance of the instantaneous heater, one to 6,000 gallons per hour in the instance where 500 gallons net

DEVLIN fittings FRETZ nipples



CLIMAX JR.
150 lb.
Companion Fitting to the DEVLIN CLIMAX UNION

Note the heavy square shouldered nut which will permit even strained pipe lines to be drawn in for a permanent seal at the full ball joint. The red brass seal is indestructible and can be used over and over again. Carefully inspected. Ask your Jobber to show you the Climax Jr.

THOMAS DEVLIN MANUFACTURING CO., INC.
Manufacturers of a Complete Line of Devlin Fittings and Fretz Nipples
BURLINGTON, N. J.

MADE FOR LONG RUGGED SERVICE

Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.
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The Worcester line is complete. Catalog gladly sent upon request.
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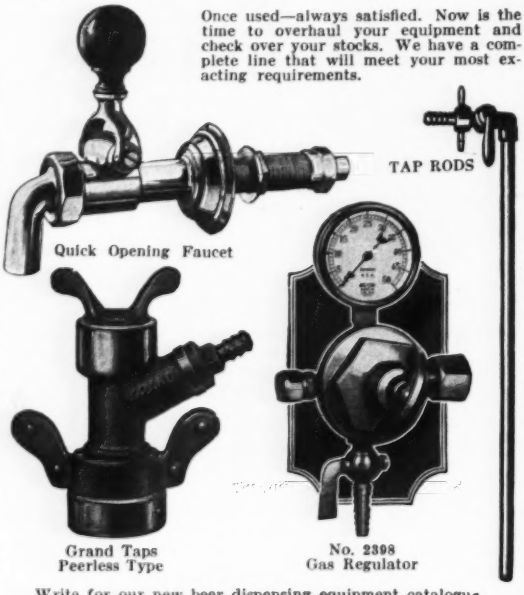
We recommend "GRAND"
BEER DISPENSING EQUIPMENT

Once used—always satisfied. Now is the time to overhaul your equipment and check over your stocks. We have a complete line that will meet your most exacting requirements.



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FROM $3 SINGLE

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A CASTLE OF COMFORT
Every room equipped with tub or shower, bed-head reading lamp and circulating ice water.

BALTIMORE
MARYLAND

storage is provided and one to heat 333⅓ gallons per hour where 1,000 gallons net storage is provided.

Where the term "net" storage is used in the foregoing it means that amount of water which can be drawn off without materially lowering the temperature of the water remaining in the tank due to the cooling effect of the incoming cold water. This retained water is limited to not less than 25 per cent and, in a case where only a slight drop in temperature is permissible, it probably would have to be nearer 50 per cent. This results in having to retain from 50 per cent down to 25 per cent of the water in the tank and the tank capacity would have to be increased by these percentages in order to get the gross storage capacity. As an example, in the second instance with 500 gallons net storage the actual storage in the heater would have to be between

500 gals. × 150 per cent or 750 gals.,
and
500 gals. × 125 per cent or 625 gals.,

while in the installation, where the full 1,000 gallons was stored as a net amount and available for draw-off, the gross storage should be between

1,000 gals. × 150 per cent or 1,500 gals.,
and
1,000 gals. × 125 per cent or 1,250 gals.

Mathematics —

(Continued from Page 63)

60/360 or 1/6 of the entire circle. Therefore the area of the pool is 1/6 the difference between the areas of

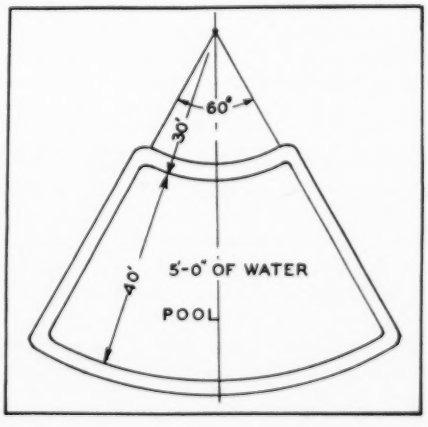

Fig. 2—How much water is in this swimming pool when the water stands 5 ft. deep?

the two circles or

12,567 ÷ 6 = 2094.5 sq. ft.

which, at 5 ft. deep is

2094.5 × 5 = 10,472.5 cu. ft.

and at 7½ gallons per cu. ft. (actually 7.48 gals.) the number of gallons in the pool will be

10,472.5 × 7½ = 78,544 gals.

Station—

(Continued from Page 58)

taken at intervals of about 200 ft., so that a steam hose may be run to and connected with each of the canopy drains for melting purposes in case these ever become frozen.

VALVES USED IN INSTALLATION

The valves on all medium and low pressure heating lines are all brass, screwed, standard weight, wedge

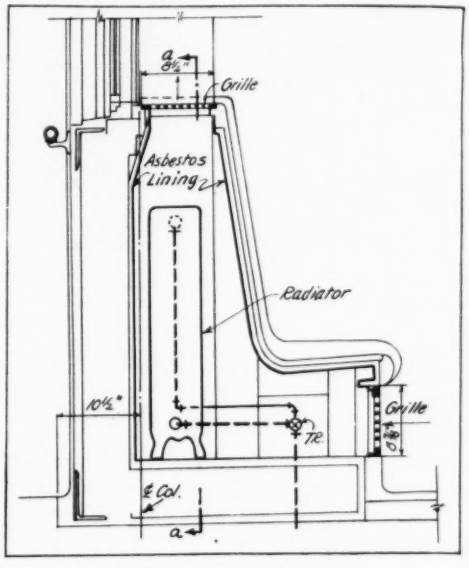

Fig. 5—Method of placing radiators under high windows in the waiting room

gate valves for sizes 2 in. and less, and iron body, bronze mounted for sizes 2½ in. to 5 in. inclusive. For valves 6 in. and over, standard weight outside screw-and-yoke flanged gate valves are used. No globe valves are employed except in cases of throttling service, such as the by-pass around a trap, or reducing valve. The valves on the high pressure steam lines and high pressure drip lines are all brass screwed wedge gate valves for sizes 2 in. and smaller and of iron body, bronze mounted, for sizes 2½ to 3½ in. inclusive, while 4 in. and over are iron body, bronze mounted, flanged, outside screw-and-yoke gate valves for 250 lb. working pressure.

On the high pressure lines globe valves are only used for by-passes on traps and when so used are all brass, extra heavy, screwed, valves for sizes 2 in. and less and iron body bronze mounted when over 2 in. in size.

The covering on all low pressure steam lines is standard thickness, 85 per cent magnesia rejacketed where exposed with 8 oz. canvas having sewed joints. The return lines and the vacuum pump discharge are similarly covered. Where lines are exposed to the danger of freezing they are covered with a double thickness of magnesia and wrapped with a 1 in. thickness of hair felt and canvas. On all lines carrying 100 lb. or 50 lb. pressure, including the drip lines as far as the trap, the

THE 'CID' LINE

complete and profitable

New additions to the CID line of Water Systems and Cellar Drainers still further broaden the profit possibilities of this famous line made by the world's largest builders of water pumps. Prices were never lower for genuine first-quality Goulds Systems. Let us tell you how you can make big profits handling this line. Write today.

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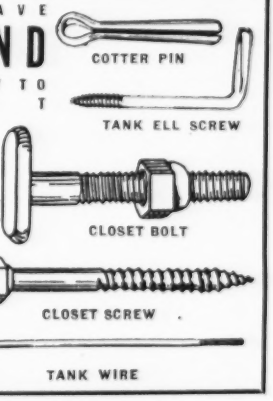
GOULDS

ELIMINATE LOST TIME ON THE JOB and YOU HAVE FOUND THE KEY TO PROFIT

THERE'S no question about it . . . every moment lost on the job cuts down your profit margin. Keep HINDLEY'S Specialties handy and safeguard this profit.



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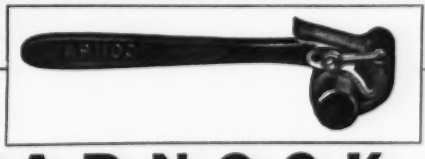
They Have Their Place on EVERY Job!

Made of heavy gauge sheet copper, two sections seamed in securely, Reichert Solderless Floats stand up even in factories, schools and public buildings. The reinforced spud makes them the strongest on the market.

Best materials, thorough inspection and testing assure long, satisfactory service from Leader Rubber Tank balls. They seat perfectly every time.

The Reichert Float & Mfg. Co.
2238 Smead Ave. Toledo, Ohio



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Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in one movement. Notice, too, that this strap is triple folded at the point of greatest strain.

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Unusually Comfortable Rooms, Good Food, Carefully Prepared, and Rates from $2.50 Single

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RADIO IN EVERY ROOM

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MAKE MICHIGAN AVENUE
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Every comfort, every fine hotel luxury awaits you at the newly modernized Auditorium Hotel. Unusually good food at modest prices.

ROOMS WITHOUT PRIVATE BATH from $1.50

ROOMS WITH PRIVATE BATH $2.50 from

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Hotel AUDITORIUM
MICHIGAN at CONGRESS CHICAGO

covering is double thickness 85 per cent magnesia on the 100 lb. lines and single thickness on the 50 lb. lines which include the kitchen steam, the ventilation steam, the platform steam and the steam for hot water heating. Where exposed, these lines are rejacketed with 8 oz.

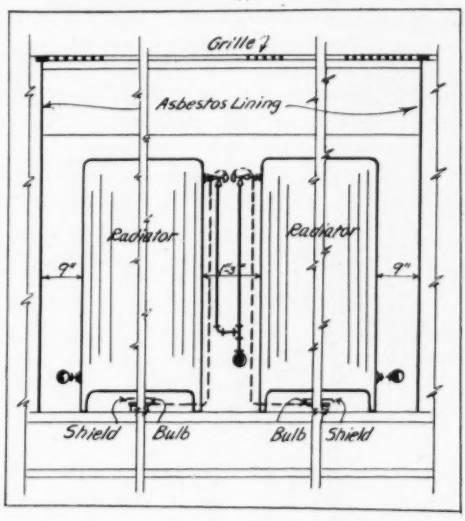

Fig. 6—This drawing shows a front elevation of the details indicated in Fig. 5

canvas. All return pipes and trap discharges from these lines are covered the same as the 50 lb. steam lines.

Steam flow meters are installed on the main steam supply branches, consisting of one on the main building heating supply, one on the general hot water supply, one on the ventilation heater supply, one on the kitchen supply and one on the platform supply.

Sales Ideas—

(Continued from Page 45)

This affiliation, the government, the bank, the contractor, the consumer, all working together, should lead us on to recovery as nothing else has done. Let's go, FHA."

A plumbing and heating contractor-dealer by the name of Dominic J. Piscitelli, located in Westbury, Long Island, has done an interesting FHA selling job. He tells us that he stopped in to see a customer of his who he knew had a leaking steam boiler. It was a very cold day and upon entering, the woman of the house complained that they could not get any heat. She explained that the boiler had started to leak again and said that she wanted him to repair it so that it would last through the winter. This dealer told her that since she was using four tons of coal a month with this inadequate system, she could save a considerable amount in operating costs which could be applied against the cost of a new heating plant if she would make the repairs now. Also, he pointed out that the job could be financed through FHA. He got the job and it was paid out in ninety days. This dealer points out that if she had felt she could not get a loan, she would have repaired the old boiler instead of obtaining a new one.

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

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One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

SALESMAN—EXPERIENCED PLUMBing and industrial brass goods. Detroit and Michigan territory. Well established manufacturer with an unusual line. Applications confidential. Address Key 136-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SALESMEN WANTED: SALESMEN and specialty houses calling on acquainted plumbers to sell a new improved valve. Outstanding opportunity for permanent repeat business. Large commission. Protected territory. All territories open. Furnish references. Address Key 131-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

HELP WANTED—SALESMEN—RUBber plumbing specialties. High grade line. Commission basis with weekly advance against earnings. Exclusive territory. Rare opportunity for good men. Give complete history of experience with application. Address Key 127-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

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MIDDLE AGED MARRIED MAN WITH knowledge of mill practices and years of sales experience in Wrought Tubular Products, both Steel and Genuine Wrought Iron, including Pipe and Oil Country Goods, is seeking salaried position as District Manager or Salesman. Has wide acquaintance among Plumbing Steam and Mill Supply Jobbers, Railroads, Wholesale Hardware Jobbers and Public Utilities in St. Louis District, comprising states of Missouri (including St. Louis and Kansas City), Kansas, Oklahoma, Arkansas, Western Tennessee, Western Kentucky and Southern Illinois. Or would consider manufacturers' accounts for Screw Products, Cast and Malleable Iron Fittings, Valves, Cast Iron Pipe, Fire Hydrants, Steam Specialties or kindred lines on salary, drawing account or straight commission basis. Can present gilt-edged credentials from large nationally known corporations. Would consider territory anywhere. Address O. R. Lane, 455 Paul Brown Building, St. Louis, Mo.

GENERAL SUPERINTENDENT — Twenty-five years' practical experience manufacturing plumbing brass. Capable designer of new fixtures. Now available. Address Key 130-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

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REPRESENTATIVES WANTED SELLing jobbers and oil burner dealers. Attractive, patented line of horizontal tank stands, easily sold and rightly priced. An ideal side line. Address Key 139-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

WANTED—SALES REPRESENTAtives for central, southern and western territories on complete line of air conditioning equipment. Line offers unusual opportunity for the right man with the proper engineering knowledge. Strictly commission basis. State age, experience and give complete references. Address Key 126-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SALES REPRESENTATIVE OR DIStributor wanted. A large middle western manufacturer of complete lines automatic water heaters (gas-fired) desires representation in Los Angeles and Southern California territory. Prefer those now representing other lines of gas appliances, also those capable of properly servicing 4,000 units now in that territory. Address Key 133-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

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WANTED—MANUFACTURING AGENT for pipe nipple line to wholesale trade only. Commission basis. Address Key 123-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

NOTICE—SPECIALTY HOUSES, DIStributors, salesmen—good opportunity calling on plumbing hardware trade, sideline, new article, every woman wants one, few territories open. Dept. No. 2, Seguin, Manufacturer, 890 St. James Ave., Springfield, Mass.

MANUFACTURER'S AGENT WANTED by steel pipe mill for southwest representation, also Kansas City. In reply give lines now carried. Address Key 135-D, "Domestic Engineering," 1900 Prairies Ave., Chicago, Ill.

Lines Wanted

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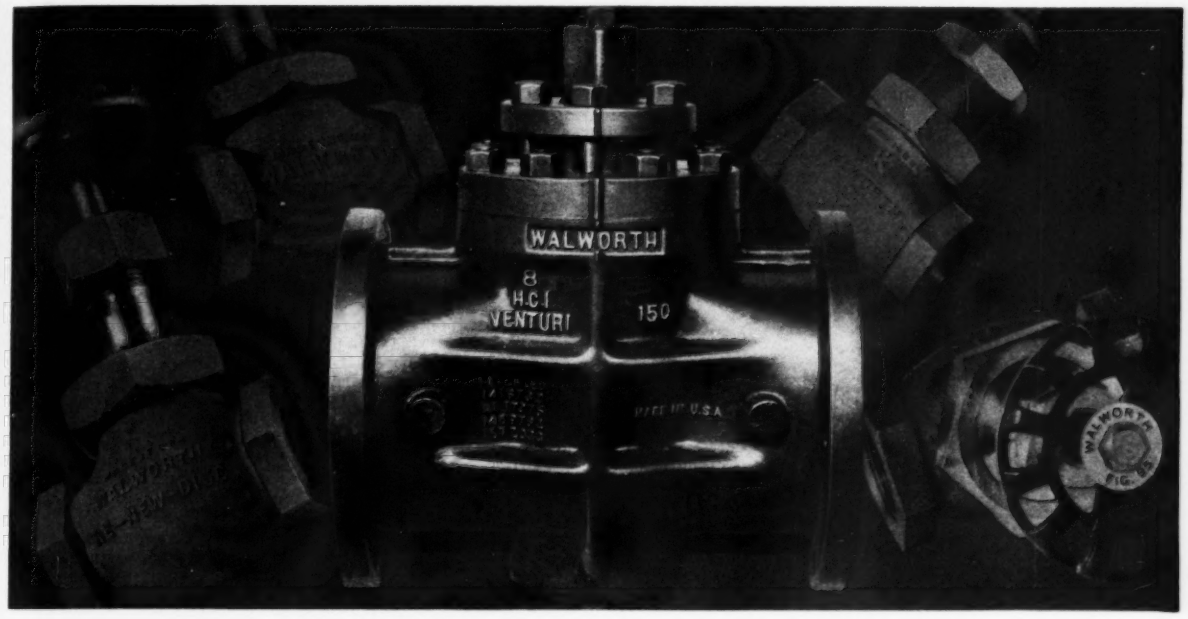

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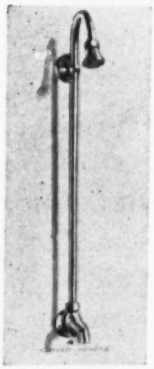
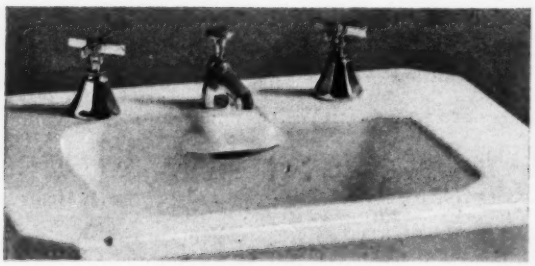
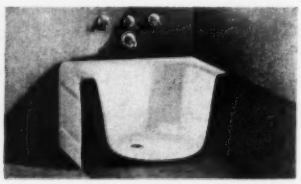


↑ AFFIXE shower can be installed in less than half an hour. Merely remove the present spout, substitute the Affixe spout, connect the riser, and put three screws into the wall.



↑ This BANCROFT lavatory fitting illustrates the beauty of the new Kohler Metropolitan design.



↑ DUNBROOKE bath fitting showing the Metropolitan design. Tell customers that the Kohler reputation stands squarely back of every fitting and every fixture.

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